Corporate Knights Building Back Better by Greening Industry		Q&A via ZOOM with Ralph Torrie
From May 13, 2020 Roundtable via Zoom (unedited file)		
Questions		**Answers**
Does Heliogen technology have relevance for solar-driven heavy industry in the near term?		It's one of many possible technologies for reaching clean high heat levels (250-1600C), but may have less applicability in Canada. We have other opportunities in biomass, hydrogen, and clean electricity.
There are substantial greenhouse gas savings through the use of Canadian steel in domestic projects. The industry estimates that on transportation emissions alone, Canadian steel has roughly three times less greenhouse gas emissions than through using imported steel. Will this reality be recognized, supported and improved upon?		That's exactly the point of targetted, dynamic and falling lead market subsidies for a decade or soo. Ideally we want to measure GHG at the border and charge for all GHG intensity, as we are making prgress on for fuels. HEC ENERGIE just published pro electrification of steel furnaces for FINKL out of Canada and USA
Given diminishing sand sources, what proposals are there for recycling of component construction materials and conversion to hemp as a substitute https://urbannext.net/hemp-concrete/?		Steel is 100% recyclable if you keep contamination levesls low, and the aggregates in concrete are recyclable. Not all the cement in concrete reacts, and some of it can be reactivated if groudn up and reused as an aggregate.
Given that a very high percentage of cement emissions come from the process itself (not from energy use in the kilns), what changes is it realistic to propose? In my experience, the cement industry rejects anything that will alter the strength of the final product, e. g. by reducing clinker content in the final mix.		The cement sector is pushing hard to b eallowed to add more supplemtnal cementous materials to their clinker mix. It's the construction standards in the country that are slow to catch up. In Europe, the allowable content for supplemental cementous materials is much higher. That's one solution, but it is trivial compared to the massive impact of direct CO2 emissions from the kilns. A better solution from a societal viewpoint would be to find alternatives to cement in the construction sector, e.g. increased use of wood in high-rise buildings.
How do we build public demand for this kind of action?		Great question. How have we build a poilitical concensus to price carbon (OBPS) in heavy industry? Politicians of all stripes are now comfortable with it. Smart policy design to address trade risk, growing, public support for action and politicall stumping. What else?
To what degree does CLT lumber offer an alternative to the concrete industry? Particularly in the mid and low rise construction?		

How do we generate this added-value for the investors with regards to "clean manufacturing"? A good exemple also is the battery industry: Canada is best-positioned to manufacture "green" batteries compare to all other countries, but investors are not looking at this aspect now, but rather focus on IRR, NPV, etc.		
What about we start charging for oxygen consumed rather than CO2 emitted. Then all cement plants will have an extra cost for a raw material (including air) needed for production of their cement and put everybody on the same levels. This would also promote less thermal processes and make electrification more interesting as it would consume less oxygen than thermal processes.		
Peter Tsantrizos Waste management		
How can federal procurement be used to drive adoption of these new production processes?		Great question. Apparently, 50% of cement in the country is purchased by all levels of government. Adding a low carbon (i.e contempra) componet to that procurment would do much to change the GHG profile of the sector.
Isn't there an ocasion to integrate criterias taking into account low GHG ciment an steel per example in evaluating LEEFE program announced this week ?		Perhaps, but that laon facility will be braodly applicable to many many industries. Some of which are not big energy users. So we have to be careful to not be too prescriptive with conditionality on the loans and avoid pick winners (and crowd out other opportunites).
Are there barriers to incentivizing these options from trade deals and in procurement and how would these restrictions be addressed to prioritize using Canadian steel and other products? Is there a strategy for reducing raw log exports and rebuilding the production sector for this product?		If it leads to Canadian jobs, it will be politically more palatable
There are three integrated steel plants in Canada - all in Ontario. There is not a huge 'stock' of plants. These plants are already pursuing decarbonization via biocarbon. This is really the only way to decarbonize existing plants. When our neighbour is the U.S., shutting down those plants will not lead to new plant construction in Canada.		There at least two ways to partially decarbonize existing BF-BOFS: add more scrap (20-30% is common) or green pig iron, or partially fire them wiht hydrogen. Thyssen Krupp in Germany is working on the latter.
How do we use LCA and circular economy approaches to properly value steel and cement from different plants, and for different applications? Is an accreditation system an option? I've seen a company called Xpansiv that attempts to do something similar for oil and gas production assets...		

Waste Management is the fastest growing business because Canadians produce more garbage and sewage, per capita, than anyone else. Until we help people convert their by-products to resources on-site, this extremely distructive business will ontinue to grow. Is the Canadian Government looking to support the on-site generation of energy, compost, water and materials so that they never are rejected as waste?		I would also like to add that we should ban organics from being disposed of in landfils as they contribute a lot to GHG emission If we ban organics, we need to create a market for the organics. That means biogas for CHP or biomethane. Provincial utility acts need to change to permit cost recovery of biomethane in the gas mix. If we ban organics, we need to create a market for the organics. That means biogas for CHP or biomethane. Provincial utility acts need to change to permit cost recovery of biomethane in the gas mix. I agree, we need market for organics, but we already have some businesses offering solution for organics, for instance, anaerobic digestors. The problem is that some of them are very far from big cities and therefore, transporting organics to these facilities would also release GHG.
A lot of industries in Canada do generate by-products suitable as cement additives to reduce significantly GHG emissions of concrete. A good example is aluminosilicates produced as a by-product of lithium salts in Quebec. But the process to certify these products is very heavy and major cement/concrete companies have no interest in supporting the small companies looking at developing these products. How can gov't help to that regard (fiscal and/or regulatory measures, etc.)?		Again, the key thing is putting a market value on lowering GHG intensity. Ideally we'd charge like we do for fuels for materials, but the dynamic output subsidies I was talking about for green and private procurement would stand in for awhile.
What about using structural wood construction which sequesters carbon instead of releasing it?		Its a good thouhgt, but not all wood is emission free. Land use change releases carbon as we harvest. There is a lot of carbon in soils, which gets released with harvesting. We need to do a better job of understanding the GHG releases associated with wood harvesting. But ultimately it's all relative, isn't it? Relative to the GHGs in the products imported. Might make our footprint look good by not developing locally but by outsourcing we are still complicit. If it is to be harvested, might as well harvest jobs from it too, no?
Thank you Chris!		
It looks like Mark is in a structural wood building		Yes - made in Quebec by Bonneville. Our Union also has a lot of members in the forestry sector...Structural wood sequesters carbon, so it seems to me to be a good alternative to concrete and steel.
Both sound and video are very choppy this week....perhaps move back to gallery view to compensate?		Choppy for me here too.

What would encourage cement plants to consume more solid recovered fuel (SRF) in Canada? Cement production is the primary market for SRF in the EU and fuel switching from coal to SRF has been the primary decarbonization approach for the sector.		Again, dynamic GHG intensity based output subsidies would financially compensate them for intensity below a benchmark, with the maximum subsidy for zero emissions. These would have to be temporary until we can get full GHG materail pricing in the supply chain. Provincial government environmental permitting is a huge barrier. Environmental permits should be granted based upon stack pollutant emissions, not the specific fuel.
Are any of the panelists going to be submitting comments to the CSA's consultation on a sustainable finance taxonomy in Canada? Steel and cement, in my understanding, are some of the most contentious areas for setting green standards in.		A carbon border tariff is required. Otherwise we will just end up with a bunch of high carbon US steel replacing Canadian steel.
From an economics point of view, is low-carbon cement and steel impacted by the pull of the product (i.e. how much more would low-carbon product cost to the consumer), or the making of the product (i.e. the cost of making the product through investment by the producers)? This impacts the type of policy/investment required in either creating a market or developing the infrastructure to make these products through other supports.		Absolutely. We need to address both the demand (building codes, branding, awareness) and supply sides (R&D, commericialization subsidies, GHG pricing)
Don’t free trade agreements limit governments from procuring nationally?		Not if they provide the same treatment to all domestic and foreign suppliers
Problem with poll is whether or not that’s the BEST way of realizing the end. Versus, e.g. incorporating incentives through carbon fees.		
@Chris Bataille, VW is looking at de-carbonizing their supply chain, particularly for the EV production. They could be a good market for low carbon steel and aluminium.		Exactly, especially for their higher end, breed branded cars. One could add Tesla, BMW, etc. I think in the future, most auto manufacturers will follow suite. We are looking to participate in that from the lithium in Alberta perspective using low GHG natural gas and sequestration to produce some of the world’s only 0 GHG lithium. We have the advantage as we are building new and can integrate seamlessly from the design stage.
In buildings, it is difficult to require more green options when we are limited to the existing building codes, which don’t include those standards. We need stronger building codes.		And we need incentives to change the exisitng building stock! Absolutely agree. We need to completely revisit our building codes to include GHG intensity, allow more cemntious material substitution, allow appropriate mixes of steel, cement, wood, etc., using them just where needed.
Why does the Canadian Government does not have "green" objective for the National Shipbuilding Strategy?		

Nick, it would be great if the database of materials were made available as guidelines to municipal governments.		
What can we do tomorrow to help shift big purchasers to choose low carbon, domestic materials without the need to rebuild the sector?		They need to see a business case, valuation. It can be tangibly financial, or goodwill through branding. Also, we need to revisit our building codes, which do not include GHG intensity and often trend towards overuse of GHG intensse materials, espeically of cement. There are lots of things we can do
Bit better now, thanks.		
What about a small deposit for all goods, as is done with bottles and cans?		
Discussion ignores 4IR. Impact of AI, 3D printing, virtualization etc. Are we greening an old economy - a sustainable, downward spiral rather than a sustainable, upward circularity? Assuming current overall structure is the same, just greener.		
At the beginning of the discussion, one of the slides mentioned the following:		
$5 billion in premiums for low carbon steel and cement over the next decade could help to catalyze... $37 billion of decarbonization investment etc."" Can I please know the sources for this?"		It's based on some calculations based on the necessary premiums for clean steel ($100-200/t)and cement (as opposed to concrete, $100/t) as portion against annual government procurement in Canada. These would be maximums, likely less.
Hydrogen at scale is decades off and it will not be economical in Canada when selling into the US market. This is totatally different than the Germans, who can rely upon on future EU low carbon market (if they put in carbon border tariffs). The lowest cost decarbonization option is displacement of pulverized coal injection in the blast furnace. Yes, green pig iron is an option and ArcelorMittal owns a eucalyptus plantation and biocarbon company in Brazil so it can produce green pig iron.		Natural gas DRI EAFs primarily use hydrogen (from a methane syngas) as the reductant. Swtiching to electorlystic or SMR+CCS prodcued hydrogen is not a big jump, and allows use to use our biomass elsewhere or leave our forests intact. There are projects to produced green pig iron as HBI using solar PV electricity to hydrogen being talked about in Australia, South Africa and elsewhere. We could do electrolytic hydrogen based reduced HBI in northern Quebec/NFL, and ship it to Ontario. Not sure what you mean by 'forests intact'. The timber harvest of Ontario and Quebec is half of what is was in 2004. Sweden harvests 10x the amount per acre of forest we do and 30% of energy is (forest) bioenergy. However, because they actively manage and productivity is so high, net forest carbon uptake reduces national GHG emissions by 80%.

While recycling is important, it is low on the waste hierarchy. What thought has been given to how we will build an industry around re-using and re-purposing construction materials in Canada?		This effort may be of interest to you: https://impactzero.ca
Joined late. In terms of various types of plastic that indicate they are recyclable, I heard in the US that vast majority of plastic types do not get recyled , but get exported to SE Asia where must of it gets dumped and burnt (at low temperature with no benefit).		
Does this same disgraceful practice happen in some or all Munis in Canada?"		Yes. Plastic is way more likely to end up in the ocean if we put it in the recycling bin than the garbage can in Canada. 8 countries have eliminated landfilling. All have done so via downtown waste-to-energy plants
Global Affairs Canada has trade commissionners in all Canadian provinces and the Clean Growth Hub is a federal institution created as the one-stop shop for the Canadian clean technology industry		
How does pushing our corporates toward ESG investment help improve green economy? Is this going to be an opportunity after coronavirus?		
What thought is going into the gendered aspects of the green recovery? Many jobs in the manufacturing and transport sector are going to be occupied by males. What is in the plans to include women in this transformation?		
Electrification of industry based on renewable power i.e. hydro from Quebec for Ontario?		yes, it is possible. But need a political will !
EAF is a totally different matter. I am talking about the three integrated steel plants in SSM, Hamilton, and Nanticoke.		
With increasing reduction of workplace jobs due to technology that has put people out of work, how do we manage?		