Presentation to the Health and Environmental Funders Network
Glenn Olcerst, Esq.
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I appreciate the opportunity to speak with you.

I spent 45 years as counsel representing and advising Fortune 500-size companies before retiring and Co-founding Rail Pollution Protection Pittsburgh (RP3).

RP3's mission is to counteract the risk and impacts that expanding rail transport, and related facilities, have on adjacent communities in terms of health, safety, and air and water quality.

I must also thank the expert presenters assembled by The Heinz Endowments at the 2015 Oil Train Response symposium and a link to that event is also included in the master index, along with a timeline and images of very scary oil train derailments which I commend to you. (1 & 2)

While action items are usually left to the end of a presentation, I will tell you upfront that after looking at what HEFN does, my best advice to you is to promote funding by your members of a national campaign especially targeting federal representatives and agencies, to improve rail pollution, health, and safety across this country, because the risks I will discuss are nationwide. At the state level, those with high rail volume corridors have also taken steps to mitigate the danger to their vulnerable populations, and I will discuss those with you as well.

Let's consider whether and why that advice makes any sense.

Consider first, that rail safety - in every sense of that term, is an overarching issue that aligns with your mission and connects all the dots between your members.

Your website indicates that members want to protect vulnerable communities. It is through those communities that rail lines run.

You note that Philanthropy is investing millions annually in support of a broad-based movement to protect people and ecosystems from 85,000 mainly unregulated toxic chemicals. All of those chemicals are transported by rail.

The chlorine industry is the only chemical industry that provided a derailment disclosure. Understand that one railcar transports 180,000 pounds of chlorine under pressure which, if punctured, releases chlorine gas at 300 pounds per second. The deadly gas — which is heavier than air and will suffocate everybody in its path, is released in about 10 minutes. You simply cannot evacuate a city in 10 minutes.

A catastrophic train derailment has the potential to destroy all of the work and lifelong investments each of your founders have made in their communities. It's as simple as that.

Your members fund reduction of fossil fuels because oil, gas, and coal directly impact health, create air and water pollution, and accelerate climate change. Well, locomotive engines emit some of the worst of such pollutants and they function as mobile pipelines to boot.

Consider that rail lines were built to make deliveries to the largest sources of stationary pollution such as steel mills and ethane cracker plants. Those stationary sources are not located in wealthy neighborhoods. In Pittsburgh, a full 76% of those in the 1 mile derailment blast zone and diesel locomotive pollution fallout zone, live in Environmental Justice areas — because of redlining. That is true throughout our nation, where 25 million people live within the 1-mile blast zone, and 60% are in Environmental Justice communities.

At the moment, everyone is focused on derailments, but according to Carnegie Mellon University analysts, train pollution is 3 times worse in terms of health impact because it is constant. Those risks escape policymaker's attention because they are not sensational.

Diesel engine trains emit a variety of air pollutants known to adversely affect human health, including volatile organic compounds, carbon monoxide, nitrogen dioxide, and carbon dioxide — a greenhouse gas that contributes to climate change.

Black carbon diesel emissions are proven to cause higher rates of asthma, decreased lung function in children, cancer, and premature death from heart or lung disease. Diesel particulate matter (DPM) happens to be the largest single air pollutant driving cancer risk in Allegheny County.

University of Pittsburgh analysts working in the School of Public Health, Center for Healthy Environments and Communities conservatively determined that in terms of air pollution, a volume of 100 trains/day at their current length and weight is equivalent to a minimum of 6,800 diesel busses driving past your doorstep every day. (3)

Just think about that. And on days when there are inversions, the impact is much worse.

Longer, heavier trains would multiply the diesel bus number exponentially. Train length throughout the nation is doubling as we speak.

CMU researchers determined that with every 10 trains/day, there will be six air pollution related deaths/year. Pennsylvania alone has hundreds of thousands of trains traveling its rails each year.

Even more disturbing is CMU's conclusion that every one hour of train idling will equal one death from air pollution, and trains have been observed idling in densely populated communities for hours at a time. (4)

In light of these facts, I suggest that you think of rail pollution as a slow-motion train derailment. Now that is what I call a crude awakening!

There are, however, solutions.

A Tier 4-compliant locomotive engine significantly reduces both oxides of nitrogen (NOx) and particulate matter, by around 86%.

According to the Diesel Technology Forum, "The emission reductions from replacing just one of the oldest locomotive engines removes 37,602 lbs. of NOx a year and is equivalent to replacing 29 older trucks or removing 30,000 cars from the road for one year."

A nationwide campaign in each state would educate elected officials about how to access federal and state diesel emissions reduction funding.

Potential sources for federal and state grants for this purpose are the Congestion Mitigation Air Quality Fund and the Diesel Emissions Reduction Act.
In addition, every state's share of the Volkswagen Environmental Mitigation Trust Funds is available for building cleaner switchyard locomotives.

In Pennsylvania, for example, we would propose that Norfolk Southern use these funds to equip its older locomotives with available particulate matter scrubbers, and to purchase and/or manufacture much-needed Tier 4 locomotives.

Since the switchyard engines and Tier 4 locomotives are manufactured in Norfolk Southern's Altoona, PA facility (which has experienced massive layoffs since 2019), our solution is a bipartisan "win/win" since it results in more manufacturing, the creation of jobs paying roughly $90,000/year with family-supporting benefits, and cleaner air for everyone.

As for actual derailments, let's understand the rail safety failure points that increase the risk of a catastrophic explosion in your town.

First, you may have heard about the business model adopted by all the Class 1 rail lines called Precision Scheduled Railroading. All Class 1 railroads have staked their financial future on PSR which is basically strict on time departures and arrivals. It is premised on a 30-40% cut in staff — including engineers, maintenance, and inspectors, and on rail yards mixing whatever rail cars are available together into the same ever longer train— which increases safety risk exponentially. That is also because how train cars are assembled dictate how it will handle emergency braking. The 30% cut in maintenance in connection with poorly rated privately owned rail bridges is possible because they know they can get a 70% discount on a new bridge paid for by taxpayers- so there is no incentive to paint or protect the steel. This model accounts for a trickle down series of risks for everyone, but gives Norfolk Southern, as one example, the ability to make $13B in stock buybacks, to award record bonuses to its executives, and to make record profits for the corporation.

This business model was implemented after rail lobbyists secured the elimination of a number of safety regulations from the previous administrations and substituted the promise that rail operators would responsibly self-regulate.

As it turns out, turning over regulating authority to industries whose executives earn their bonuses on profits was never a good idea for the public or for the environment — consider Volkswagen diesel emissions fraud and the Boeing 737 Max debacle.

In our case, corporate greed and regulatory failure have once again put the public at risk.

Allowing a railroad to self-regulate is much worse than the FAA allowing Boeing to inspect and determine airplane safety, since when a railroad cuts corners, the consequences are catastrophic for entire communities for multiple decades into the future.

The problem here is that while Norfolk Southern touts safety, behind closed doors they appear to be promoting profits over prudence. We know this because of what was said in a Complaint that was filed in US District Court for Western Pennsylvania. The FLSA whistleblower lawsuit was filed on behalf of Russell Puzausky, a Norfolk Southern locomotive engineer for 21 years working out of the company's Conway yard in Beaver County. Puzausky v. Norfolk Southern Corp., Docket No. 2:21-cv-00606 (W.D. Pa., May 21, 2021).

- During a three-month period, Engineer Puzausky discovered 40 federal safety rule violations that either "took these trains out of service, or delayed their departure while additional inspections or repairs were performed." Engineer Puzausky believed that "these safety violations were especially significant because of on-board hazardous materials." (Complaint Paragraphs 10-13);
- Engineer Puzausky was told that the local management team could "no longer tolerate" the delays caused by his reporting of non-compliant locomotives "...because it was causing them to 'get their asses chewed out' by their superiors." (Paragraphs 14, 18);
- According to Complaint Paragraph 37, Engineer Puzausky "had previously been told that on time departure was more important than adequate pre-departure inspection. (5)

Understand that the reporting of unsafe locomotive conditions, and refusal to operate a locomotive that had not been inspected, is required by federal law.

This case is important because it calls into question whether there is system-wide top-down pressure on engineers to shortcut inspections.

The headline for a recent article in *The Guardian* touts "Leaked Audio Reveals US Rail Workers Told to Skip Inspections." (6) This is a national problem, and East Palestine, Ohio is a huge fiery alarm bell. Recall also that the rail workers for all of the big operators were willing to go on strike because they are not being given enough time to inspect, maintain and repair the equipment, rail lines or bridges.

In terms of getting to the destination at the scheduled time, NS has a written policy that managers can override an alarm generated by a hotbox which will detect a wheel bearing failure - which is what told the train to finally stop too late in E Palestine. ProPublica asked the other 6 largest rail companies if they have such a policy. 4 said no. One of the 4 said no one can or should ever disregard a stop the train alarm. 2 others didn't respond. Forget hotboxes, there is available technology that can warn of wheel bearing failure at least a thousand miles before it happens based on bearing vibrations, but that would interfere with profits.

As if all that is not enough, in May of 2018 Norfolk Southern's' lawyers admitted in the Complaint filed in federal court in their own law suit against rail tie manufacturer Boatright Rail Products that Norfolk Southern has installed 5 million rail defective rail ties throughout their system supplied by Boatright that, in their own words are "inherently dangerous" because they were not waterproofed, are prone to more quickly rot, and which cannot be easily identified because Boatright failed to include identifying kerf marks. (7)

Just this March 10, NS issued an advisory that another one of their manufacturers was supplying axles with loose wheels and the car that derailed in Springfield Ohio had that defective wheel set.

All of this means that you can no longer think of the trains running through your towns with nostalgia.

This is definitely NOT a good neighbor. Rather, this is a Norfolk Nightmare coming soon to a neighborhood near you.

There are 8 other rail safety fail points that make the next derailment a potential "city killer:"

1. Human error accounts for the most derailments resulting from both excessive train speed and manual switches being set incorrectly — as we recently saw in the head-on collision in Greece. The solution is to slow trains carrying hazardous material below the 40-mph limit currently allowed in urban areas, to implement Positive Train Control with backup systems on all lines carrying hazardous material, under an expanded definition of what is hazardous and to mandate electronically controlled pneumatic breaks which can stop a train 40-60% faster.

2. Substandard infrastructure: Rail bridges are the most vulnerable point in any rail line. Poorly-rated privately-owned rail bridges are most likely to collapse because they have gone the longest without being painted or maintained, carry the heaviest loads (coal car trains) of any type of bridge, and their failure resulting in the derailment of an oil train would cause the largest catastrophe in terms of risk of death and damage. Under-rated rail bridges should be given priority for maintenance over vehicular bridges because if the poor condition of the rails atop the bridge crack, it will cause an exploding derailment and bring down both the bridge and the train. Pressure from the press and our elected officials will be necessary to enable independent engineers to review the inspection reports and categorize the priority of necessary repairs. Consider that there is currently no national inventory of rail bridges, no mandated submission of inspection records, and no required minimum engineering standard for rail bridges. The federal government has ceded authority for bridge inspection and oversight to the railroads that own the approximately 100,000 rail bridges around the nation. (8)

3. Railroad companies are allowed to self-regulate and are left to determine safe load limits, rail track wear standards, inspection and maintenance schedules, and engineering standards with little or no independent oversight. In addition, federal guidelines provide no minimum design standards for bridge construction or maintenance.

4. Failure of Substandard below rail infrastructure: many water and sewer lines (4-6' in diameter) beneath the rail tracks all along Norfolk Southern's Pittsburgh Line are over 100 years old, made of hand laid brick whose mortar has degraded from acid rain, and are at the end of their useful life-especially with increasing train length, weight and volume.. They need to be inspected, replaced, or reinforced before train volume increases. Pittsburgh is not unique in this regard.

5. Rail line water drainage systems are antiquated and subject to being overwhelmed by record rainfall caused by climate change. When that happens the soil under the ballast becomes supersaturated and it shifts, taking the rails out of alignment.

6. Bakken crude is volatile because of the gasses it contains. According to the WSJ just one railcar is the equivalent of 2M sticks of dynamite and unit trains are 100 plus cars long. Railroads save money by shipping the oil and gasses together. The solution is to stabilize the oil by removing the volatile gasses

from Bakken crude before it is loaded onto rail cars—but that cuts profits. LNC by rail is in our near future and 22 rail cars of LNG under pressure have the equivalent explosive force of the Hiroshima atom bomb. (9)

7. Railroads also have control over how much or how little to fill a tank car. It is necessary to implement and enforce standards against both overloading and under-loading tanker cars (which will prevent sloshing) to reduce the likelihood of derailments. In Pittsburgh we have a train line with 14 nearly 90 degree turns—three of which are within 1 ½ mi. of each other. That route torques the train in two different directions and how cars are filled is critical—but rail operators make more profit by overfilling.

8. Rail carriers have consistently over the years increased the size of trains while disregarding the limitations of technology and infrastructure largely unimproved for decades. Longer, heavier trains can otherwise turn what would be a minor derailment, into a major catastrophic event .

Emergency response is a fiction; we must focus on prevention. The government is pretending that they are prepared, and first responders are in peril because they don't know the volatility levels of the gasses that are in the rail cars.

It is irresponsible to pretend that the risk can be managed. Railroads have offloaded emergency response capabilities to local communities that in reality are not funded or prepared for this type of catastrophe.

The regulatory system is broken – authority has been ceded to the monopoly. No laws have been broken and that's the problem.

You will hear that no laws have been broken, but that's the problem.

There will be no better time to win rail safety improvements. There are commonsense solutions contained in our link of federal and state action items. But you must understand what we are up against. This industry is entirely imbedded in the Government. Without a national grassroots campaign our adversaries will again prevail.

Understand that the Rail and Petrochemical lobbies are among the strongest in the nation. Their members are even embedded in Congress and led by Senator Thune.

In 2004 now Senator Thune was a registered lobbyist for a railroad corporation who got himself elected to the U.S. Senate, and then he promptly helped his former client become eligible for billions in the wake of the company's hazmat train derailment. He later spearheaded the effort to kill safer ECP train brake rules while becoming the Senate's top recipients of campaign cash from the industry. Now Senator Thune is leading the group against the Rail Safety Act and his former legislative staffer is the industry's top lobbyist. We can talk more about the Railway Safety Act in the Q & A segment.

In the House, the new Republican chairman of the transportation committee is the chamber's top recipient of the industry's campaign cash. The industry also employs more than 200 lobbyists who have previously served in the federal government. Meanwhile, Norfolk Southern's general counsel — who has pressed for numerous federal safety waivers — is a former executive director of the National Transportation Safety Board (NTSB), which is currently investigating the company.

All of that influence is bolstered by the rail industry's PR operation to fight regulations, as well as $14 million in federal campaign donations in the past two election cycles.

I suggest the following corrective actions:

1. Require that there be both disclosure and quantification of derailment impacts and emergency response plans;
2. Require a minimum of two crew members per train, and require that the engineer be tested for sleep apnea;
3. Require safer tank cars, because currently CPC-1232 tank cars won't be fully upgraded to newer safer standards until 2029;
4. Institute both track rail quality standards and the periodic replacement of worn-out tracks. Currently rail companies self-regulate how far down they can wear their tracks and there are overwhelming examples of compromised safety.
5. Mandate that the findings of any FRA Derailment Report may be used in any civil action for damages. Read more about it here.
6. Limit the length of hazardous material trains to prevent derailments. Evidence indicates that most trains that have derailed were over 100 cars long;
7. Require Electronically Controlled Pneumatic brakes (ECP) on all hazardous and LNG trains. ECP is a tested technology that offers major benefits in freight train handling, car maintenance, fuel savings, and network capacity -- all of which significantly enhance rail safety and efficiency. (10)
    - Expand the definition of a hazardous cargo train to one carload of flammable/dangerous material = "hazmat unit"
    - any train containing 1 or more hazmat units is subject to:
        - ECP brakes mandated
        - lower max speeds (experts recommend 20 mph) through populated areas
        - max train length 1 mile (alt: add caboose w/3rd staffer & ECP switch, up to 2-mile length)
        - notification to all jurisdictions on route incl. material id
    - double hotbox detection frequency to 10-mile max (or add onboard detectors)
    - lower detector action threshold from 200° above ambient to 120°

- Require railroad safety regulators act to act immediately to set temporary maximum safe train lengths and establish permanent train length regulations within a reasonable time.
- Replace antiquated subsurface water/sewer lines and inadequate water drainage systems

These are all commonsense action items --but it is essential to fund grassroots countermeasures on rail safety and policy reform before a really catastrophic derailment occurs-rather than focusing on emergency response. That is because this industry is entirely imbedded in the Government. The leader of the opposition was a rail lobbyist, now Senator Thune. We can talk more about him and the Railway Safety Act in the Q & A segment.

What I've covered so far has been at the federal level. There are also opportunities for state-level campaigns:

Note that other high rail corridor states including California, New York, New Jersey, Minnesota, Washington, and Oregon all have laws expressly permitted by the Federal Oil Pollution Control Act of 1990 (OPA) that:

1. Impose strict liability, in the event of a derailment involving an oil spill or explosion, for all property damage, health costs, lives lost, require the restoration of natural resources, and permit punitive damages.
2. The OPA also allows states to impose fees on oil landed or transferred into the state once it comes off a rail car. (This was never even challenged by the railroads in California.)
3. In terms of oil spill response planning, it covers more than just the plan, it allows requiring training equipment, communication systems, and qualified officials to coordinate with the first responders. It also requires cleanup.

In court challenges, the railroad argued that if federal standards exist, they are exempt.
The states got around that exemption by passing laws of general applicability to all industries covering health and safety of all citizens.

States are also allowed to ensure that a railroad is financially responsible either through insurance or the posting of bonds. Sadly enough, Pennsylvania currently has none of the above. Federal laws relating to oil spills are just the floor and the state can require more. Moreover, states can regulate where the government has failed to do so.

State and local governments share authority with the feds to enforce federal safety standards and they can conduct inspections which are paid for by rail industry assessments.

While there are a lot of gray areas, there is no dispute that states and local governments maintain police powers, and public health and emergency response plans with regard to offloading facilities and refineries.

They can deny land use permits for expansion if they find improper safety risk or improper mitigation under state statutes.

While only the federal government can regulate train routes, city and state governments ***can*** control what new infrastructure gets approved within their borders. Many proposed rail projects must undergo state-level environmental reviews and public comment periods.

Local and state governments can also push for safer conditions, with regular inspections and upkeep of tracks and (often old and crumbling) rail bridges.

Some states have also begun requiring rail companies that transport crude oil through their cities to provide emergency response plans and the funds necessary to carry them out.

On January 29, 2018 Washington State Governor Jay Inslee rejected a permit required for Tesoro-Savage to build the Vancouver Energy oil-by-rail facility, the largest such project in the nation, at the Port of Vancouver. The project was determined to be absurdly dangerous and too potentially destructive.

Recently, both the Washington and California courts have denied other oil-by-rail projects because those projects lacked comprehensive environmental reviews.

The biggest victory occurred in 2016 when the city council in Benicia, California, voted unanimously to reject Valero's proposed oil-by-rail project and the Federal Surface Transportation Board then ruled that local communities had the right to weigh in on oil-by-rail projects proposed in their area.

That decision gave communities the right to say the safety of the community matters.

As a result of the Surface Transportation Board decision, the biggest threat facing the industry today is local regulation of Crude Oil/Ethanol Unit Train loading and unloading projects involving non rail carriers.

In closing, consider that with each passing train, the rail operators are playing Russian Roulette with you -- they are spinning the gun's cylinder and we are all literally dodging bullets. So far, we have been just plain lucky.

I've known for sure, and now everyone now knows, that Norfolk Southern's complete arrogance and disregard for the health and safety of people is what drives our grassroots members, and will drive those that you fund.

Funders must encourage communities to use their voice to contact federal and state officials. The more of this that happens, at every level, the more difficult it will be for elected leaders to serve polluters instead of their constituents.

If there is one thing that I have learned in my old age is that you cannot underestimate the power of what a community can do when they stand together.

We all deserve power without pollution and energy without injustice.

Q & A

The Bipartisan Rail Safety Improvement Act would:

- ✓ strengthen rail car and railway detector inspection requirements- such as mandating that a hotbox detector scan trains carrying hazardous materials every 10 miles;
- ✓ require rail carriers to provide advance notice to state emergency response officials about what they are transporting;
- ✓ authorize $22 million for the Federal Railroad Administration and $5 million for the Pipeline and Hazardous Materials Safety Administration to research and develop stronger tank car safety features;
- ✓ increase fines for safety violations and funding for training and strengthening rules for high-hazard, flammable trains.

But it stops short of dictating major regulatory changes, leaving the matter to the FRA and the Transportation Department.

The legislation emerged a day after two House Democrats introduced a more restrictive bill that would impose:

- ➢ more stringent rules, including a slower speed limit;
- ➢ requirements for more sophisticated equipment on trains carrying a wide variety of hazardous substances;

- would broaden the definition of what is considered a "high-hazard flammable train," subject to stricter federal safety regulations (The train that derailed this month was exempt from such requirements).

What did the Rail Unions have to say:

Railroad Workers United (RWU), said the Railway Safety Act proposed by a bipartisan group doesn't address what the group says are other pertinent issues, such as proper training standards, adequate staffing levels for both operating and nonoperating crafts, train length, ECP brakes, and adequate sick leave provisions.

"We have a once-in-a-lifetime opportunity to win major safety improvements to the rail industry in the U.S but the concern is over what is glaringly left out of the bill and what aspects are left to the DOT and FRA to draft, implement, and administer." There is no confidence that those agencies will handle them thoroughly because these agencies are administered and staffed by former railroad management and thus "have a history of subverting rail safety, issuing waivers, and all too often serve the rail industry's agenda."

The Brotherhood of Locomotive Engineers and Trainmen said the bill's language on train crew sizes and requiring train crews of at least two people has potential loopholes, such as the regulation applying only to long-distance freight trains.

"If the language is not precise, the Class I railroads will avoid the scope of the law without violating the law, yet again putting the safety of our members and American communities into harm's way." BLET National President Eddie Hall said "You can run a freight train through the loopholes."

Meanwhile, SMART Transportation Division President said "The provisions in this act add up to the end of the era of Precision Scheduled Railroading (PSR) and attempt to take back control of our nation's supply chain from Wall Street's 'profit at any cost' mentality. It offers a chance for the nation to make the giant rail corporations take rational measures to get the industry to do what it's designed to do — move freight through our nation safely and efficiently and be an example for the rest of the world to model."

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1) Oil Train Response 2015, The Heinz Endowments: https://www.youtube.com/playlist?list=PLuy2nzsk-XDWsXb-o6DmcrD0Akfc31uK1

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