Dangerous Neighbors: Pipelines, Compressor Stations, and Environmental Injustice

Introduction:

As natural gas continues to be touted as the transition fuel of choice, the industry's extraction and rush to build infrastructure and its consequences have been coming under increased scrutiny. Natural gas pipelines and compressor stations are associated with specific risks and health problems, which frequently bring the most harm to low income communities and communities of color, often given little or no choice about hosting gas infrastructure in their communities.

http://wellsaidcabot.com/recently-released-data-methane-emissions/

Natural Gas infrastructure – What is it <u>really</u> delivering?

In an article entitled "The Networked Infrastructure of Fossil Capitalism: Implications of the new Pipeline Debates for Environmental Justice in Canada"[1], Dayna Scott describes fossil fuel pipelines and compressor stations as infrastructure that "delivers environmental injustice by changing the physical properties and configurations of communities, and taking away community choice for the type of energy in which they want to invest." This is a useful framework to consider how pipelines are planned, sited, and permitted here in the US and, in particular, the proposed Atlantic Coast Pipeline, planned to run through 8 counties in eastern North Carolina. If allowed to proceed, the Atlantic Coast Pipeline will deliver adverse health impacts, limited choice on future energy investment, and heightened risk of accidents, and disproportionately to low income and people of color communities.

Health Effects of Gas Pipelines and Compressor Stations

As the body of research about the health effects of living near fossil fuel infrastructure has grown, so has the concern of public health professionals. In September, 2015, over eighty health professionals sent an open letter to the Federal Energy Regulatory Commission (FERC) calling on the Commission to discontinue any granting of permits that expand the fossil fuel infrastructure[2]:

"We, the undersigned health professionals, strongly urge the Federal Energy Regulatory Commission (FERC) to immediately stop issuing permits for any new fossil fuel infrastructure. Based on scientific evidence of the health and public safety risks associated with fossil fuel infrastructure such as oil and gas drilling, refineries, pipelines and compressor stations and of their contribution to the further escalation of climate change and its associated risks to public health and safety, there must be a moratorium on new permits and a hold on construction for projects that have not been completed until a plan is made to move completely to energy sources that do not cause harm."

Pipelines and compressor stations bring with them a host of health risks and dangers. Communities of color and low income have long been targeted for disruptive infrastructure projects and polluting facilities - including pipelines and compressor stations - that cause health problems for the surrounding community.[3] The specific volatile organic compounds (VOCs) that are emitted by compressor stations have been associated with several serious health problems, including cancers, respiratory and cardiovascular illness, and birth defects[4]. The health complaints of residents near these facilities have been consistent. The difficulty in directly correlating health complaints with exposure to emissions may be partly due to the failure to collect information about intermittent peak exposures. Toxic air emissions are often reported as averages over a year, which fails to account for shorter, more intense incidents of exposure that can cause more damage than a consistent, lower average exposure.

The annual averaging of emissions also fails to account for how cumulative periods of exposure can cause cumulative damage, nor do current measurement practices account for varying health impacts based on proximity to a source of emissions. Emissions are often averaged over a several-mile radius, yet residents close to processing stations will necessarily experience higher exposures. One peer-reviewed study specific to PA compressor stations found that "distance to industrial sites correlated with the prevalence of health symptoms. For example, when a gas well, compressor station, and/or impoundment pit were 1500-4000 feet away, 27 percent of participants reported throat irritation; this increased to 63 percent at 501-1500 feet and to 74 percent at less than 500 feet. At the farther distance, 37 percent reported sinus problems; this increased to 53 percent at the middle distance and 70 percent at the shortest distance. Severe headaches were reported by 30 percent of respondents at the farther distance, but by about 60 percent at the middle and short distances."[5]

Residents living near natural gas compressor stations also report symptoms consistent with inhalation of harmful emissions. The specific chemicals emitted by compressor stations vary from site to site. In Dish, TX, some chemicals identified as exceeding Texas's ambient air standards, measured at a variety of locations near and on residential properties[6] include: benzene, dimethyl disulfide, methyl ethyl disulphide, ethyl-methylethyl disulfide, trimethyl benzene, diethyl benzene, methyl-methylethyl benzene, tetramethyl benzene, naphthalene 1,2,4-trimethyl benzene, m-&p- xylenes, carbonyl sulfide, carbon disulfide, methyl pyridine, dimethyl pyridine.

"Anecdotally, we know that people living near compressor stations report episodic strong odors as well as visible plumes during venting or blowdowns. Residents often report symptoms that they associate with odors such as burning eyes and throat, skin irritation, and headaches."[7] These reported symptoms - related to the respiratory, nervous and cardiovascular systems – are consistent among residents across a range of geographic locations impacted by gas development.

Left: Susan Wallace-Babb lives close to a natural gas well and two fuel storage tanks in Parachute, CO. After getting violently ill following exposure to fumes, she now wears a gas mask almost every time she goes outside (Erin Trieb for ProPublica https://www.propublica.org/article/science-lags-as-health-problems-emerge-near-gas-fields). **Right** Rash suffered by Lisa Parr after a multitude of fracking wells cropped up near her family's home. Other symptoms her family suffered included nausea, high blood pressure, nosebleeds, and eyesight problems. They were awarded $3 million in a lawsuit against Aruba Petroleum, Inc. (Photo courtesy of Parr family http://www.cnn.com/2014/04/25/justice/texas-family-wins-fracking-lawsuit/)

The type of exposure also depends on the type of incident: fugitive emissions, blowdowns, or accidents. Fugitive emissions are uncontrolled or under-controlled releases. They occur from equipment leaks from pipes, valves, connectors, tank hatches, etc. that are part of "wellheads, separators, or pneumatic liquid level controllers," and compressor stations.[8]

The largest emissions from compressor stations come from blowdowns, which can be scheduled (to relieve pressure or seal off a section of the infrastructure to perform repairs) or accidental. In a blowdown, a gas plume bursts from the equipment to a height of 30-60 meters. The most forceful rush occurs at the beginning (see above on intermittent, large exposures) and then slows down over the course of a few hours. Blowdowns are periods of increased exposure for surrounding residents, and cause high levels of noise that can last for hours, sometimes waking neighbors in the middle of the night and preventing sleep.

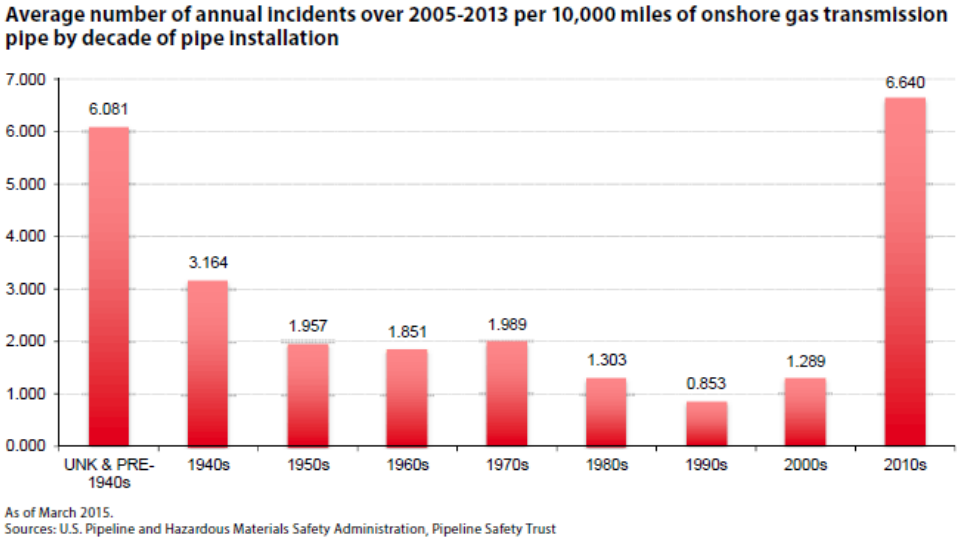
There is also a risk of accidents. The Pipeline and Hazardous Materials Safety Administration (PHMSA, in the U.S. Department of Transportation) collects data on all reported incidents for gas pipelines including gathering, transmission, and distribution. From 1996 to 2015, there were 11,192 incidents costing $6,678,631,880. These incidents killed 371 people and injured another 1,378. In just the first six weeks of 2016, there were 53 incidents costing $10,118,748.[9]

Perhaps the worst natural gas incident on U.S. soil in recent times was in San Bruno, CA in 2010, when a faulty seam in a pipe owned by PG&E led to a tremendous explosion. The blast flattened or damaged dozens of homes and killed 8 people. To make matters worse, the section of pipe that led to the explosion was incorrectly listed as seamless, meaning it was not part of the safety inspections for sections with seams. PG&E faces numerous criminal charges for this incident.[10]

A 2010 explosion in San Bruno, CA pipeline flattened a neighborhood and killed 8 people (http://blog.sfgate.com/energy/2013/05/15/pges-900-million-san-bruno-tax-break/). This explosion occurred after increased pressure in the line weakened some poorly welded seams.

Compressor stations also present a possible source of radioactive exposures. The gas in the pipelines lines typically carries some radon, and as the radon decays, it leaves polonium and lead to build up inside the pipes (polonium and lead radioisotopes have more extended half-lives – 138 days and 22.6 years, respectively - than radon, 3.8 days.).[11] When these radioactive by-products are present, workers and nearby residents could be exposed during blowdowns. Gas customers at the end of pipelines may also be exposed.[12] Workers could receive radiation exposure when handling contaminated pipes during routine cleaning or maintenance.

We know that methane leaks from natural gas infrastructure and accidents have a strong effect on climate change.[13] There is evidence that, in the recent rush to build so many new pipelines to support the expansion of fracking and investment in natural gas, the pipelines are being built with fewer quality controls. In fact, new transmission lines are failing at the same rate as those constructed in the ***1940s*** (or worse)! Says Carl Weimer, of the Pipeline Safety Trust, "The new pipelines are failing even worse than the oldest pipelines.[14]



Coastal Processing Facilities

Coastal processing facilities are used to transform natural gas from gaseous form into liquefied natural gas (LNG) to condense it for overseas shipping. European and Asian markets have, in the recent past, been willing pay high enough prices for natural gas to make it cost-effective to ship long distances, and the industry has been seeking permits for export processing facilities for years . The "super-cooling" process that turns natural gas into LNG consumes massive amounts of energy ---and the LNG lifecycle emits at least as many toxic pollutants as coal.[15] It is the communities surrounding the facilities that take the brunt of that processing pollution before this purportedly "cleaner" fuel is shipped overseas. Just as with other gas infrastructure investments, building these facilities locks in investment in local coastal resources and a commitment to extract more natural gas through fracking and other means, in order to process and ship it to the most lucrative markets.[16]

LNG export facilities also depend on the giant ships that carry the product overseas, which have their own harmful emissions, and dump polluted ballast water into the host port. There is also the risk of explosion, spills, or other accidents in ships filled with LNG. Processing facilities also present a safety hazard to workers and the surrounding community. In 2014 an "unexplained" explosion at a facility in Washington State sent large pieces (up to 250 lbs.) of shrapnel flying, injuring several workers and causing the evacuation of the surrounding area. Some pieces flew the length of three football fields.[17] Fortunately, this particular site was sparsely populated, but much of the United States coastline – especially on the Eastern seaboard, near where fracking has accelerated the extraction of natural gas – is densely populated, and the consequences of a similar incident could be deadly and costly in terms of damage to other coastal properties.

Residents of Lusby, MD, a populated residential community, are concerned about this very scenario. The Dominion Cove Point coastal processing facility in Lusby was approved by FERC. Cove Point is an existing, but dormant facility that had been used for importing natural gas. Transforming the facility to use for exporting LNG requires numerous modifications to the existing facility, including the addition of a 130 MW power station. Neighbors are understandably concerned about what the resurrection of this facility for gas export will do to their community in terms of health and safety, and

are concerned that Dominion Resources is not taking adequate precautions. Local fire and emergency management officials say that Dominion's communication with them has been minimal, and the use of phrases such as "should" rather than "will," when describing how a constructed firewall is envisioned to protect the community in the event of an explosion, hasn't been reassuring to them. There is only one route in and out for residents of 265 Lusby homes in the event of an emergency, and the evacuation route actually heads directly toward the facility before veering away to a safer area to the east. The Lusby community has demanded a formal Quantified Risk Assessment (QRA), but thus far the federal government has remained unresponsive to this request.[18]

As the gas industry pursues the expansion of coastal infrastructure along the heavily populated east coast, the likelihood of these coastal facilities being sited in heavily populated areas grows. Looking at the North Carolina coastline, for example, the area from the Outer Banks down to the South Carolina Boarder is full of vacation homes and year-round residents dependent on the tourist economy. The majority of people who depend on the tourist economy are in service industries, with relatively low wages, and any threat to tourism is a threat to their livelihood. From the Outer Banks north to the Virginia line, coastal areas are relatively heavily populated by low-income, African-American residents. This means that, regardless of specific location of a possible coastal processing facility, the expansion of the natural gas infrastructure along the North Carolina coast would have adverse impacts on vulnerable communities, in addition to the kind of wide ranging impacts on the tourism economy that has been experienced by Gulf coast communities with fossil fuel infrastructure.

Dominion's Assurances of Safety, Impact on Communities

Dominion is securing permits to build a major transmission pipeline from West Virginia through eastern North Carolina – the Atlantic Coast Pipeline (ACP). Whenever new pipelines are built, nearby residents are promised they will be safe. Dangers and environmental harms are minimized, and any concerns or objections are portrayed by the energy corporations as overblown. Should Dominion be trusted to fulfill promises everything will be fine with its construction and operations in West Virginia, Virginia, and North Carolina? Several incidents over the last several years offer reasons to be wary.

On January 24, 2011, Dominion gas pressure regulators in Fairport, Ohio – including the *backup regulator* - failed due to icing, causing a gas surge that set off numerous explosions and house fires, completely destroying seven homes. It was very fortunate no lives were lost, but there was extensive property damage and disruption. At a public meeting between Dominion East Ohio officials and customers from the affected area, one customer noted that he was instructed to evacuate his house, so naturally he locked it when he left. However the shutoff valve to his home gas line line is <u>inside</u> his house, as was the case with other evacuees' homes. Dominion has made no plans to move the location of those shutoff valves outside, in order to be more accessible to service personnel. Dominion East Ohio also said they had no idea why the regulators froze, as they had not experienced this problem in much colder temperatures.[19]

On December 5, 2013, also in Ohio, one of Dominion's 8-inch steel pipes ruptured, causing an explosion that created a 10 foot-wide crater, with gas shooting up into the air. The pipeline was built in

1957.[20] In trying to figure out what happened, Dominion officials were unsure if this incident was even considered "reportable".

In Augusta County, VA, 27 miles of the ground underneath the proposed Atlantic Coast Pipeline route is unstable, due to caves, springs, and sinkholes in karst formations. "Many individuals, groups, and government officials have worried about the unintended consequences, including leaks, explosions, and drinking water contamination, of a sinkhole opening up under a 42-inch natural gas pipeline. Repeatedly questioned about their ability to deal with a large pipeline spanning a large hole, ACP officials have continually offered reassurances as to their ability to quickly and safely mitigate a problem."[21] In the fall of 2015, Dominion had an opportunity to demonstrate their responsiveness when a large sinkhole opened up on a Dominion-owned easement.[22] The hole was thirty feet in diameter and exposed a high voltage, Dominion-owned power line as well as a phone and cable line.

Thirty foot-wide sinkhole, with exposed cable lines (http://www.newsleader.com/story/news/local/2015/11/14/sinkhole-sparks-safety-pipeline-concerns/75768270/).

More than two weeks after this unsafe situation developed, Dominion finally put up a bare minimum restriction – plastic fencing – around the site. The company then managed to remove their own power line, but told the landowners they had to deal with the remaining hazards. Ironically, the landowners may be legally prohibited from doing any repairs on a Dominion easement. This attitude of minimal responsibility by Dominion does not bode well for potential safety concerns associated with a new pipeline and accompanying compressor stations.

FERC and Environmental Justice

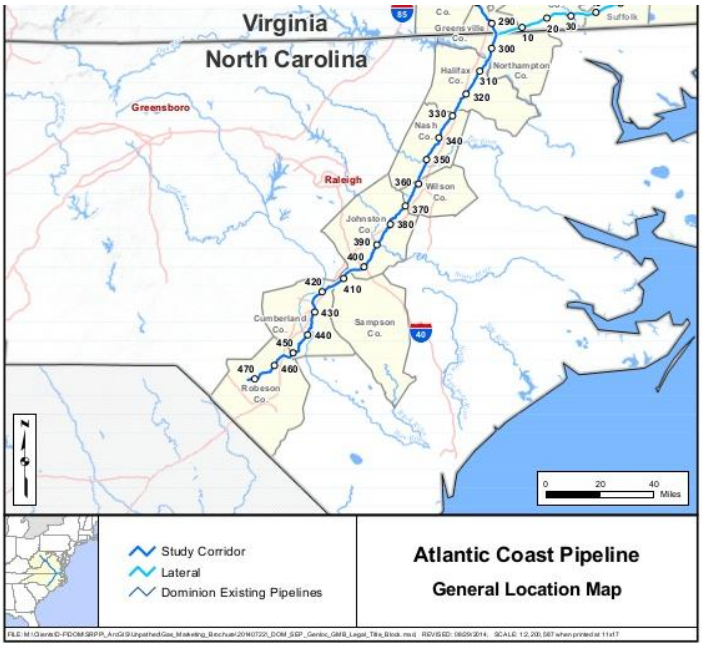
FERC (the Federal Energy Regulatory Commission) grants permits for interstate pipelines and compressor stations. These projects can impact communities which are predominantly low-income, rural, and/or communities of color, yet FERC has been glaringly disinterested in considering environmental justice factors as part of its decision-making process.

FERC's inaction related to environmental justice is sometimes attributed to the fact that FERC was designed to be an independent commission, and is under no FERC-specific mandate to consider environmental justice principals in its decision-making. Yet FERC is still a part of the federal government, which requires each agency to comply with Section VI of the Civil Rights Act and Executive Order Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. FERC's parent organization is the Department of Energy, which has a detailed strategy for incorporating principals of environmental justice into its actions and departmental operations.[23] Part of this strategy is to "Identify and address programs, policies, and activities of the Department that may have disproportionately high and adverse human health or environmental effects on minority, low-income, and tribal populations." Even though DOE does not have direct authority over FERC, it is still striking that FERC would be so isolated from this goal of its parent agency, and not held accountable to Section VI of the Civil Rights Act.

Atlantic Coast Pipeline Through Indigenous or African American Communities

Indigenous communities have been impacted by forced removal, land confiscation, broken treaties, and enslavement for centuries. This has resulted in the current state of affairs wherein natural gas pipelines and other industrial operations crisscross over land that was historically tribal land, or even on currently tribal reservation lands. These operations have often been highly profitable for corporations, but not for the Native Peoples who are faced with poverty and low employment and poor health care. (It should be noted that some tribal councils have been in favor of, or even welcomed energy production on their tribal lands, in return for a share of royalties. Whether those royalties actually help the majority of tribal members is highly questionable and a source of intra-tribal conflict). In addition, the fossil fuel infrastructure and extraction industry has environmental consequences that are frequently in conflict with cultural ties to the land.

The proposed path of the Atlantic Coast Pipeline follows much the same pattern, with indigenous peoples being at even greater disadvantage due to a lack of federal recognition or official tribal reservation land. In North Carolina, the pipeline is currently proposed to go through eight North Carolina counties. In four of those 8 counties, the Native American population is above the state average (Halifax, Sampson, Robeson, Cumberland). In Robeson County, where the pipeline ends at an existing compressor station that will be expanded for the new pipeline, the indigenous population is 38.4%. The indigenous groups whose communities may be impacted by the proposed pipeline are the Haliwa-Saponi, Coharie, and Lumbee, all state recognized tribes. FERC has a designated person to reach out to tribal groups during the pipeline permitting process, but only to federally recognized tribes.



http://www.slideshare.net/MarcellusDN/map-of-route-for-dominion-atlantic-coast-pipeline-natural-gas-pipeline

There is also a higher than average percent population of African Americans living along the proposed route. The statewide African American population is 21.3%, but in 7 of 8 counties along the proposed route the black population ranges from 24.3 – 58.4%. Income vulnerability is also an issue in populations that would be impacted by the pipeline--7 of the 8 counties have median household incomes below the statewide median of $46,693, ranging from $30,581 in Robeson County to $44,778 in Cumberland County. The statewide percentage of people living in poverty in North Carolina is 17.2%. Seven of 8 counties along the proposed route have poverty levels higher than the state, ranging from 17.6% in Cumberland County to 33.1% in Robeson County.[24] Those are county-wide figures, and the pipeline will only affect a portion of each county, but still this gives an idea of the economic environments of the pipeline-impacted communities.

Northampton County and the Atlantic Coast Pipeline: Health and Economic Impacts

As part of the plan for the Atlantic Coast Pipeline, Dominion intends to build a compressor station in Northampton County, NC, on the VA border. Northampton's African-American population is 54.6%, and the median income in Northampton County is $31,453, nearly $15,000 *below* the state average. Almost thirty-two percent of Northampton residents live in poverty, compared to 17.9% statewide.[25] Only 9.4% of Northampton residents have a bachelor's degree or higher. According to the Bureau of Labor Statistics, in December 2015 the unemployment rate was 7.4% compared to 5.4% for the state. The overall cancer rate in Northampton County is 516.6 per 100,000 people exceeds that of the entire state (488.9/100,000). Lung and bronchial cancers are specifically elevated: 80.5/100,000

compared to 70.1/100,000.[26] These statistics depict a population that is disadvantaged in terms of health, income and education.

A compressor station, with the associated negative cardiovascular effects and cancer elevation in adjacent communities[27], could exacerbate health problems. In a place like Northampton County, where low educational attainment and low income may hamper residents' ability to get information and adequate health care, the residents would be even more vulnerable to adverse health impacts. Potential sources of respiratory exposure include toxic volatile air emissions during routine operations, intentional or accidental blowdowns and possible exposure to radioactivity carried with the gas.

At the January, 2016 Leadership North Carolina Forum in Cary, NC, Donald Raikes, Dominion Energy's senior VP for business development said that "in every case Dominion has been involved with, new industry sprung up around the pipelines because of the availability of a consistent source of energy".[28] When state and local officials and economic development professionals hear this kind of presentation from industry, they often accept it at face value and focus only on the expected jobs and tax revenue for their communities. Yet the oil and gas industry and their allies have a well-established track record of inflating the number of jobs a given project will bring. A report by the Cornell University Global Labor Institute which studied the jobs claims made by proponents of the Keystone Pipeline, showed that any construction jobs would be temporary – lasting largely over only a two-year time period. Whereas Transcanada claimed the Keystone pipeline would create 20,000 direct jobs, this report found that number to be closer to only 2,500-4,650 (and temporary). The same study concluded that most or all of these jobs would go to non-locals. In addition, this study pointed out that investing in the Keystone Pipeline would lock out investment from sustainable energy projects, both efficiency improvement and renewable energy, and add to costs associated with climate change.[29]

A joint study by the Labor Network for Sustainability and Economics for Equity and Environment used GIS and economic analysis to demonstrate the more effective choice of investing in existing water and pipeline infrastructure repairs and improvements in the five states that would be affected by the Keystone project, rather than in the Keystone pipeline itself. They found that this option would create "156% of the number of direct jobs created by Keystone XL per unit of investment", including 15,000+ permanent water/existing gas line jobs versus 161 Keystone pipeline jobs (a State Department study of the Keystone Pipeline job prospects put the number of permanent jobs at only 50[30]) . One comparative study looked at the number of jobs predicted as a result of building the Keystone Pipeline versus those that would be created by repairing existing pipeline infrastructure (including water and wastewater pipes) in the five state area that would have been affected by Keystone. The authors found that construction of new fossil fuel infrastructure would be a far less effective way to create jobs than replacing failing wastewater pipelines (100,000 jobs), replacing failing drinking water lines (177,000 jobs), and replacing failing gas distribution lines (37,000 jobs).[31] If industry and public officials are making a "do it for the jobs" argument for construction of the pipeline, there are other investments that would achieve that objective more effectively. This comparison doesn't even consider the cost to the local people and governments if a spill or accident occurs.

Many residents and local officials in counties such as Northampton County might take some of the above factors under consideration, weigh it against the property taxes the pipeline and new compressor station will bring to the local government, and conclude that the property taxes outweigh the meager job prospects and could be used to help less advantaged communities. Unfortunately, these

vulnerable communities are most likely to be where environmentally harmful projects are sited. Such communities sometimes describe themselves as being "sacrifice zones." As described at the beginning of this paper, once the pipeline and compressor station are sited and built, it effectively restricts the choices of residents in Northampton County to recruit and site projects that are less harmful to their health and well-being. If there is an accident at a compressor station, or when people living close to it begin showing symptoms associated with exposure to compressor station emissions, the property tax revenue and limited jobs are unlikely to compare favorably to the health and accident recovery costs to the local government and residents.

Lost Opportunities and Stranded Assets

In the current business climate for the energy industry, there has been heavy investment in expanding the natural gas infrastructure. Natural gas is being touted as the "clean" transition fuel to renewable energy. However, pipeline and other infrastructure investments are often in the billions, a level inconsistent with a temporary, transitional approach. Dominion says the Atlantic Coast Pipeline will be a $4.5-5 billion dollar investment, for which it has a guaranteed "rate of return" or profit margin above its costs. Investments always require choices about use of available capital. If those billions of dollars were invested in rapidly developing renewable energy, efficiency strategies and repairing other infrastructure, the result would include a longer term gain for the local economy, lower health and safety costs and reduced climate impact. Jobs are always presented as a big selling point for new fossil fuel projects, particularly in economically stressed counties, yet studies show that investment in the renewable sector produces a higher number and more diverse jobs.[32] As the current energy investment pattern shifts, shareholders in these big energy companies are likely to find they are the owners of "stranded assets," no longer paying for themselves– due either to market transition, or the inevitable depletion of natural gas resources.[33] Yet it is current customers who are being forced to fund these risky infrastructure investments now in the form of rate hikes and ongoing cost increases.

In the meantime, North Carolina is one of the leading states for solar construction, second only to California.[34] Renewable energy tax credits (before they expired in 2015) have brought rooftop solar into a more affordable range for some individuals, and even Duke Energy has announced its intention to invest more in solar ($500 million in North Carolina). Rural counties with significant open land are siting solar arrays on farm land no longer in use, seeing solar as a way to bring jobs and non-emission producing industry to their communities.[35] Continuing to use Northampton County as our example, allowing a natural gas pipeline and compressor station effectively reduces the range of choices that community has for the indefinite future, for energy production and economic development. That community will be dependent on the tax dollars those facilities provide, as will any businesses that are attracted to tap in to the new pipeline (this will have to happen via local gas distribution companies, as the ACP isn't designed for homes or businesses to directly tap in[36]). With that financial dependence will come an assumption of risk associated with emission leaks and potential accidents, risks that affect both the physical and financial health of the local population. A report by RAND, Corp released in 2013 estimated that as much as 75% of health and environmental costs (estimated at $7.2 - $32 million for

2011) related to shale gas development emissions in Pennsylvania to be related to compressor stations[37], not to mention the costs of accidents mentioned previously.

For FERC to approve a new pipeline, the applicants must prove "significant evidence of need". They meet this requirement by contracting with potential customers in advance to account for the capacity of the proposed project. This decision is made irrespective of whether there is existing infrastructure owned by a different company. For example, the Atlantic Coast Pipeline would be owned by Dominion, Duke Energy, Piedmont Natural Gas, and AGL Resources. Ninety percent of the capacity for that pipeline is contracted to be sold to subsidiaries of these same four companies, meaning they can make profits from their investment by passing costs on to customers in the form of rate hikes. Dominion has contracted 1/5th of the ACP capacity to supply two of its own plants in Virginia, yet is has also contracted with a different pipeline to supply the same two plants with all the natural gas they have need for. Finally, part of the rationale for building the ACP is to provide cheap "transition" fuel from the Marcellus Shale and Utica natural gas formations. According to the U.S. Geological Survey and Moody's Investor Service, barring new discoveries, those supplies will run out in 15 years, far shorter than the life of new infrastructure. It is unreasonable to make *customers* pay for a new pipeline that could be useless in a few years.[38]

Expanding Natural Gas Infrastructure – Are Communities Even Given a Choice?

One of most challenging aspects of fighting for environmental justice is the insistence – legislative and judicial – that the intent to discriminate must be explicit and overt, as it relates to Title VI of the Civil Rights Act. Something can only be "environmental racism" if a government or industry actor specifically and only chooses a community for an environmentally harmful project siting because the race or income of the locality reduces the obstacles, as in the landmark case of the PCB dumping in Warren County, NC. Power brokers in the community often collude with industry representatives to bring in projects in the interest of particular economic interests, rather than considering any widespread benefits to the population, or how the industry might harm the community's air, water, soil, or health of residents. Communities without political power or that are struggling economically, educationally, and fraught with health problems, are especially poorly prepared to combat the legal, financial, and public relations onslaught brought on by the natural gas industry. The Atlantic Coast Pipeline will be built by Dominion, a company that has shown plenty of interest in extensive public relations to get communities to accept their projects, but have shown great recalcitrance when faced with responsibility for accidents. Why should they be trusted to build through the economically at-risk counties? Why should these counties, with more concentrated African American and Native American populations be asked to bear the risks of new pipelines and compressor stations? It is unfair that these communities so often are the ones paying the steepest price for everyone else's cheap energy or investor profits.

Communities Fighting Back The political landscape can be daunting for communities hoping to keep new natural gas pipelines and processing facilities out of their communities. The oil and gas companies have deep pockets for public relations and litigation, are well-versed in navigating the permitting and approval process, and understand how to get what they want from local officials eager for tax dollars and economic development news. That said, the power of community organizing should not be

underestimated. In fact, the successful pressure of protest and organizing on fossil fuel companies is well-expressed by a group that profits from contracts on these projects – "The engineering consultants Black and Veatch recently published a report that said the most significant barrier to building new pipeline capacity was "delay from opposition groups"."[39] In 2007, the Australian corporation BHP Billiton was trying to push a liquefied natural gas pipeline through the poor and mostly Latino community of Oxnard, CA that would service an import terminal they also hoped to build. The people of Oxnard, with the support of several environmental groups, and an alliance with nearby Malibu (a wealthy community also opposed to the pipeline), successfully kept the facility and pipeline at bay. Erica Fernandez, age 16, spoke before the California Land Commission during their decision-making process. With her testimony, she encapsulates how when it comes to expanding natural gas infrastructure, it is the oil and gas corporations that have the most to gain, and the community that has the most to lose[40] :

> "If you allow this project to come into my community, our future will be dependent on a company which has become wealthy at any cost. Do they live here? No. Do they vote here? No. Do their children go to school with me? No. Would you allow us to become their experiments? Commissioners, tonight you are charged with making a very important decision. I ask you, making that decision, I'm asking you to think about the young people of this community. People like me. Look around. That community is present. We are young, old, black, brown, white, rich, middle class, and poor. We are from Oxnard and Malibu. We are united against this project."

The Oxnard community stood firm, and fended off the pipeline.

More recently, conservative-leaning landowners against the use of eminent domain teamed up with anti-pipeline environmentalists and scored a major victory against the construction of the proposed Palmetto Pipeline in Georgia. Bowing to pressure by this coalition, the state legislature passed a bill that places a moratorium on the use of eminent domain for pipeline construction until 2017, "effectively killing the project".[41] In April of 2016, Kinder-Morgan announced it was ending plans to construct a new pipeline through Massachusetts and New Hampshire. The pipeline plan suffered from both not enough customers to justify the project and organized opposition from community members.[42]
When communities join together, find common ground across differences, and remain focused, acquiescence to pipelines is not inevitable.

Fossil Fuel Infrastructure Contributes to Climate Injustice Globally

The expansion of natural gas infrastructure delivers climate injustice worldwide through atmospheric changes, regardless of where it is actually sited. The benefits of burning natural gas instead of coal as a "transition fuel" are overwhelmed by the long underestimated climate impacts of methane release in every part of the natural gas cycle from extraction, to treatment, to transmission pipelines, to overseas transportation and delivery pipelines. FERC is only supposed to grant permits for new infrastructure if "need" can be demonstrated, but pipeline permits have been granted so easily and frequently that overbuild may simply move beyond "need" and straight to exporting, contributing to accelerated climate.[43] Over the first 20 years after it's released, methane is now known to be 86 times as powerful a greenhouse gas as carbon dioxide[44] . Fossil fuel infrastructure is perpetuating dependence

on climate changing carbon dioxide, as well as the worse climate impact of unburned methane. The communities that will be most adversely impacted are likely to be communities of color and low-income communities.[45] [46]

End Notes

[1] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2271320

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