Coal Blooded

Putting Profits Before People

Executive Summary

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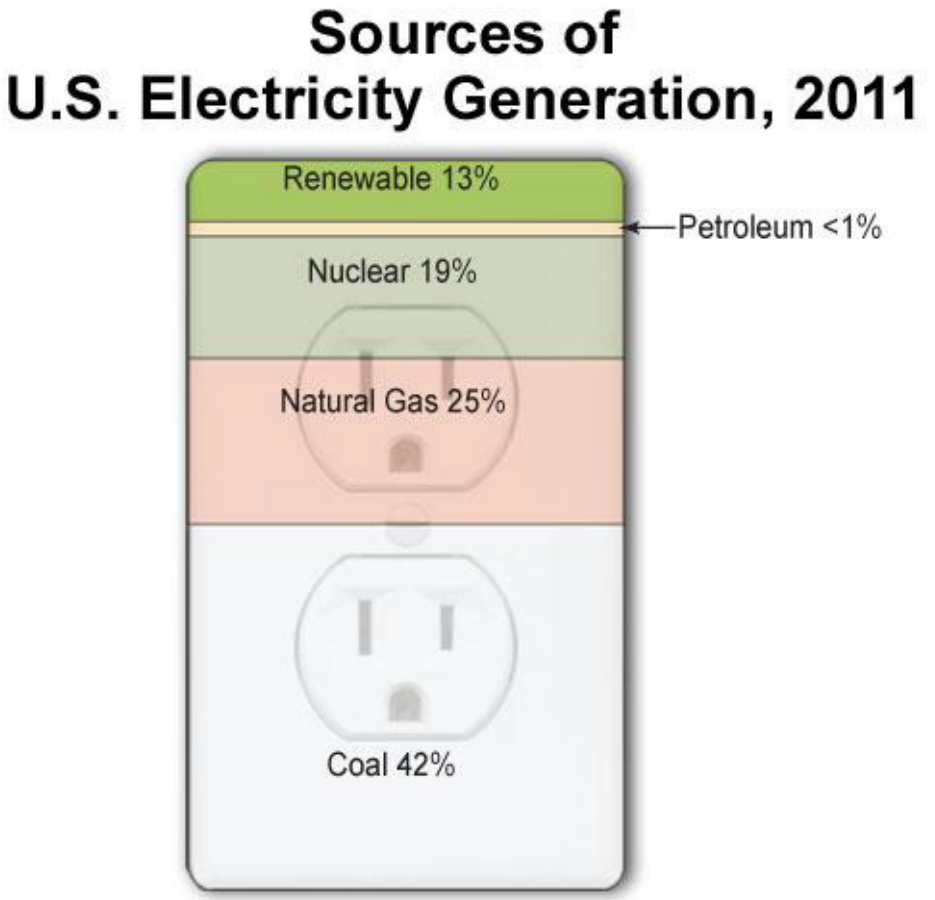
Executive Summary

America is hooked on coal— and that addiction has remained constant for at least four decades. While many other countries are moving toward cleaner energy sources, *44.6 percent of the U.S.'s electricity comes from coal-fired power plants*, which is still relatively unchanged from an historic low of approximately 44 percent in 1972.[iii]

Figure 1: U.S. Electricity Generation Fuel Shares, 2011



Source: U.S. Energy Information Administration, *Electric Power Monthly* (February 2012). Percentages based on Table 1.1, preliminary 2011 data.

Coal Is Killing Low-Income People and People of Color

Coal burning is—and has always been—deadly. As there is no proven technology that can "clean" coal, the entire coal energy cycle — from mining, to combustion, to the disposal of coal ash — is harmful to communities:

- **Underground mining:** Though safer than it has been historically, underground mining still results in a number of negative side effects, including significant health disorders and displacement among communities; destruction of natural habitats; disruption of sacred sites, water depletion from surface, subsurface and aquifers; and diversion of water away from community needs.
- **Mountaintop removal coal mining:** Hidden in the poorest and most economically vulnerable parts of West Virginia, Kentucky, Virginia, and Tennessee—mountaintop removal coal mining has permanently destroyed 500 mountains in Appalachia, and threatens hundreds more.
- **Coal Combustion Residuals (CCRs):** Otherwise known as "coal ash," CCR are the debris produced from burning coal for the generation of electricity. CCRs represent one of the largest waste streams in the United States.

Nearly six million Americans live within three miles of a coal power plant. As noted below, coal power plants tend to be disproportionately located in low-income communities and communities of color:[iii]

- People who live within three miles of a coal power plant have an average per capita income of $18,400, which is lower than the U.S. average of $21,587.
- Among those living within three miles of a coal power plant, 39 percent are people of color — a figure that is higher than the 36 percent proportion of people of color in the total U.S. population. Moreover, the coal plants that have been built within urban areas in the U.S. tend overwhelmingly to be located in communities of color.

Living in such close proximity to coal plants has serious consequences for those communities. Coal plants are single-handedly responsible for a large proportion of toxic emissions that directly poison local communities in the United States. While the full extent to which coal-fired power plants are associated with fatalities is difficult to precisely quantify, a conservative estimate is offered by a 2010 report by the National Research Council (NRC), which calculates that approximately 1,530 excess deaths per year are caused solely by particulate matter pollution from U.S. coal-fired power plants, and that "aggregate damages associated with emissions of SO_2, NO_X, and PM from [the 402 largest U.S.] coal-fired facilities in 2005 were approximately $62 billion."[iv] The authors of this NRC report also note that other analyses calculated figures for total costs and mortality caused by U.S. coal plants that were as much as six times higher.[v]

Coal Is Hurting Our Planet and Its Inhabitants

Carbon dioxide, or CO_2, is a major cause of global warming.[vi]Pertinent to this discussion, coal is the world's most carbon-intensive fuel, which means that coal power plants produce more CO_2 per unit of energy than any other energy source.[vii]*In 2006, coal-fired power plants in the United States alone produced 1.94 billion tons of CO_2 — 32 percent of the U.S.'s total CO_2 emissions, and almost 7 percent of the world's total CO_2 emissions.*

To put this in perspective, *coal power plants in the U.S. emitted more CO_2 in 2006 than the total amount that was emitted by all sources in all countries in Latin America and the Caribbean that year*.[viiiix]

Climate change is already devastating the Global South — and that devastation will only accelerate as the 21st century continues. However, global climate change is not only a threat to communities in the Global South. The impacts of climate change include, but are not limited to: increased drought; an increased number of heavy downpours and flooding; more frequent and intense heat waves and wildfires; greater sea level rise; more intense storms; and harm to water resources, agriculture, wildlife, and ecosystems.[x]

Proponents of **climate justice** argue that, in order to limit the severe effects of climate change — both in the United States and globally —CO_2 emissions must be reduced dramatically. However, in deciding which countries should cut their emissions the most, proponents of climate justice argue that we must consider both *per-capita emissions* and *cumulative emissions*.

While CO_2 emissions prior to the 20th century are very difficult to calculate, due to a lack of adequate and reliable records, researchers from the World Resources Institute have used U.S. Department of Energy historical data to calculate each country's total CO_2 emissions since 1900 — and the results are clear. While the U.S.'s CO_2 emissions in 2006 were 5.75 billion tons (or 20% of the world total), U.S. emissions between 1900 and 2005 totaled 318 billion tons — or *30 percent of the world total* for that period.[xi] Climate justice activists refer to this historic inequality among carbon emissions as "ecological debt" or "emissions debt"—a debt of increased economic capacity and wealth that "industrialized nations… owe the rest of the world as a result of their appropriation of the planet's capacity to absorb greenhouse gases."[xii] As a result of these imbalances, it is incumbent upon the Global North to reduce its emissions.

N.B. This report was researched and written using the last available 3-year average data from the EPA, from 2007-2010 and the latest census data available (2000) at the time of the completion of the report. Though some plants have closed and demographics have shifted, the intention is to illustrate the impact our dependence of coal has had on communities over time and to provide a cautionary tale if we continue on our present course of coal dependence.

U.S. Coal Power Plants and Corporations on Environmental Justice Performance: A Summary of Key Findings

Ranking Coal Power Plants

Not all coal plants are created equal; therefore, the effects of some plants on low-income communities and communities of color are measurably worse than others. This

report provides an empirical discussion of the effects of burning coal in power plants. Researchers focus on the coal plants in the U.S. with the worst records on environmental justice, and on the companies that own them.

Researchers conducted a systematic study of 378 coal-fired power plants in the United States, in which each plant was assigned an environmental justice performance (EJP) 'score,' a relative 'rank,' and a 'grade' based on how it affects low-income communities and communities of color. (For the complete ranking of all 378 plants, see Appendix 1). The same methodology is used to assign a Corporate Environmental Justice Performance (CEJP) 'score,' a relative 'rank,' and a 'grade' to 59 leading U.S. power companies, based on the effects of those companies' coal-fired power plants on low-income communities and communities of color. (For the complete ranking of these 59 companies, see Appendix 2). The score assigned to each plant, and each company, is based on five factors: SO_2 and NO_X emissions; the total population living within three miles of the plant(s); and the median income and percentage of people of color among the total population living within three miles of the plant(s). (For a complete description of the report's methodology, see Appendix 3).

It is important to note that this report is *not* a ranking of coal power plants based on the overall toxicity of their emissions — in other words, **the fact that a particular plant receives a grade of "F" does not mean that it is necessarily one of the 'dirtiest' coal plants in the United States**. Numerous existing reports and studies (most notably, the Environmental Integrity Project's "Dirty Kilowatts" reports[xiii]) score coal power plants based purely on the toxicity of each plant's emissions. This report is an "environmental justice performance" ranking—it uses a complex algorithm, combining levels of SO_2 and NO_X emissions together with demographic factors, in order to calculate each plant's score, ranking, and grade.

Also, CO_2 emissions were not included as a factor in the rankings. This is for two reasons: (1) unlike pollutants like SO_2 or NO_X, there is no viable way of limiting the amount of CO_2 that is emitted when coal is burned, and thus each coal power plant's CO_2 emissions are simply a function of the plant's size;[xiv] and (2) while CO_2 affects the planet as a whole, SO_2 and NO_X primarily affect communities in the area surrounding the power plant, making SO_2 and NO_X more relevant pollutants than CO_2 for the purpose of environmental justice calculations.

Finally, the fact that researchers assigned a particular plant a 'passing' environmental justice performance grade does not suggest that this plant has no detrimental effect on public health, or on low-income communities or communities of color. These grades are relative, and only score individual plants in relation to one another. **All coal-fired power plants in the United States are detrimental to public health.** Thus, a grade of 'incomplete' is assigned to plants scoring above C —as it would be unconscionable to assign a grade of A or B to a plant that, while not located in an area that is densely populated by low-income communities or communities of color, is nonetheless

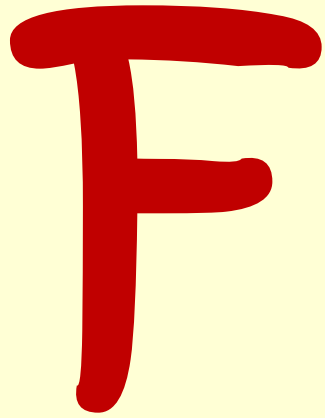
responsible for causing considerable environmental and public health effects.

Finding #1: The U.S. is home to 75 'Failing Plants' by Environmental Justice Standards

Seventy-five plants earned an environmental justice performance grade of "F." These 75 'failing plants' produced only 8 percent of U.S. electricity in 2005 (375,552 GWh), but they were responsible for 14 percent of SO_2 emissions and 13 percent of all NO_X emissions from all U.S. power plants.[xvxvi] These 75 failing plants have a considerable and disproportionate impact on people of color and low-income people. *A total of four million people live within three miles of these 75 failing plants. The average per capita income of these four million people is just $17,500 (or 25% lower than state average), and out of these four million people, nearly 53 percent are people of color.*

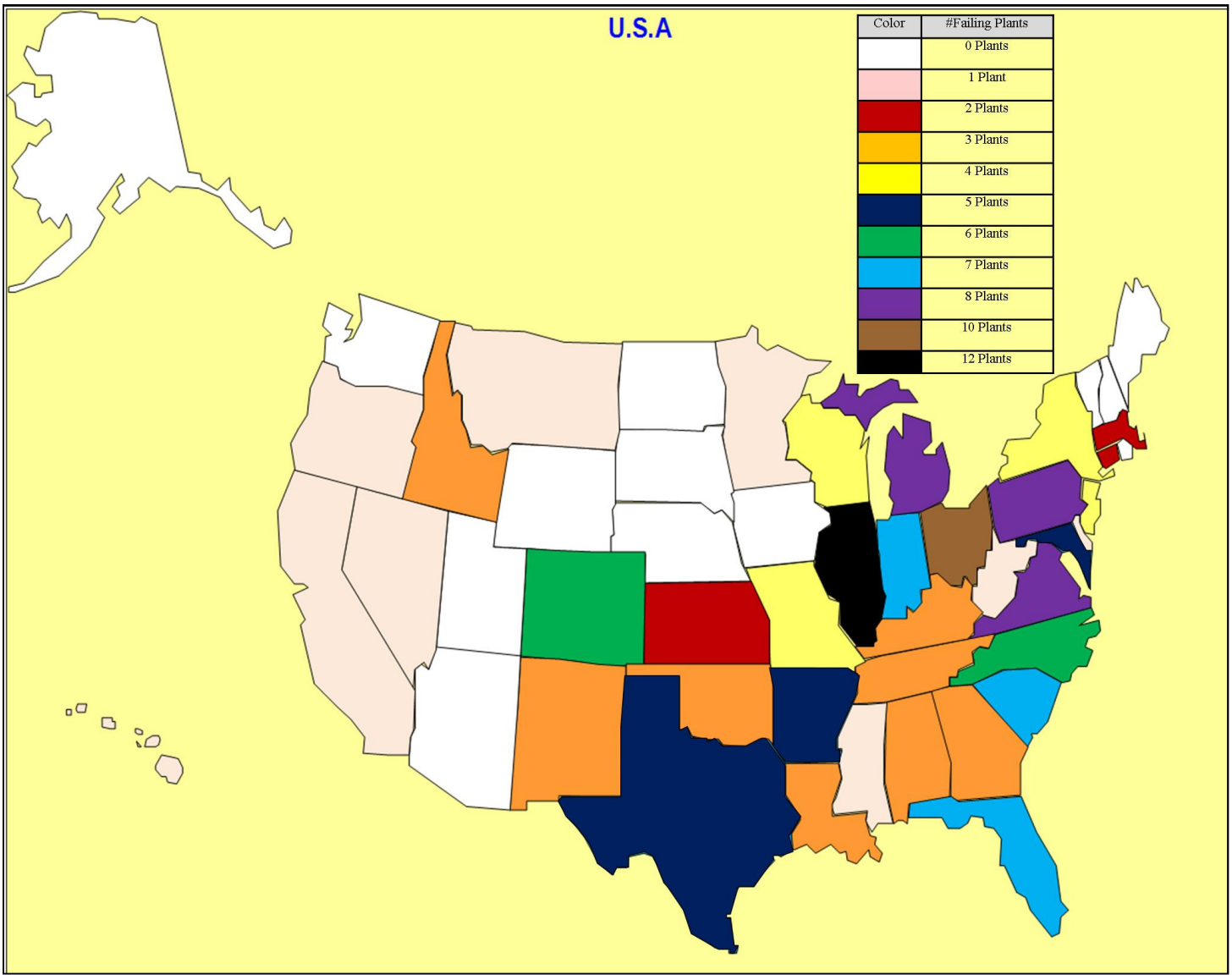
REPORT CARD

STATE NAME	# OF PLANTS
ILLINOIS	9
INDIANA	5
MICHIGAN	5
VIRGINIA	5
COLORADO	4
NEW JERSEY	4
NEW YORK	4
PENNSYLVANIA	4
NORTH CAROLINA	4
SOUTH CAROLINA	4
FLORIDA	3
NEW MEXICO	3
WISCONSIN	3
ALABAMA	2
KANSAS	2
MASSACHUSETTS	2
OHIO	2
ARIZONA	1
CONNECTICUT	1
GEORGIA	1
HAWAII	1
LOUISIANA	1
MARYLAND	1
MISSOURI	1
NEBRASKA	1
TENNESSEE	1
TEXAS	1



List of states with failing power plants given a grade of an F, created for this report.

The report card, above, shows the absolute worst 75 environmental justice offending plants in the country, all of which received a letter grade of an F. It is important to also examine plants that fall within an expanded definition of the word "failing" to encompass all of the plants that are causing the most harm. The expanded definition of "failing" refers to plants with a grade of a D+ or worse on their environmental justice performance scores. Like in school settings, a grade of a D+ or worse requires urgent remediation. The map below uses the expanded definition of the word "failing," D+ or below, to color codes states by the number of failing plants within the state's borders to show where the most attention is needed.



Map of the states with their corresponding failing power plants (plants given a grade between D+ and F), created for this report.

Finding #2: The '12 Top Environmental Justice Offenders' Disproportionately Affect Low-Income People of Color

Out of the 378 coal-fired power plants examined for this study, the following 12 had the worst environmental justice performance scores:

1. **Crawford Gen. Station, Chicago, IL (Edison International)- Closed 8/28/2012**
2. **Fisk Gen. Station, Chicago, IL (Edison International)- Closed 8/30/2012**
3. **Hudson Gen. Station, Jersey City, NJ (PSEG)- Still Operating**
4. **Valley Power Plant, Milwaukee, WI (Wisconsin Energy)- Announced Plan to Close 8/17/2012**
5. **State Line Plant, Hammond, IN (Dominion)-** Closed 3/31/2012
6. **Lake Shore Plant, Cleveland, OH (FirstEnergy)-** Delayed Closing until April 2015
7. **River Rouge Plant, River Rouge, MI (DTE Energy)-** Still Operating
8. **R. Gallagher Gen. Station, New Albany, IN (Duke Energy)-** Still Operating
9. **Cherokee Station, Commerce City, CO (Xcel Energy)-** Still Operating
10. **Bridgeport Station, Bridgeport, CT (PSEG)-** Still Operating
11. **Four Corners Plant, Niinahnízaad, NM (Arizona Public Service Co.)-** Units 1, 2 & 3 Close 11/8/2010, Units 4 & 5 Still Operating
12. **Waukegan Gen. Station, Waukegan, IL (Edison International)-** Units 1, 2 & 6 Closed, Units 3, 4, 5, 7, & 8 Still Operating

Ranking Corporate Environmental Justice Performance

This report also assigns corporate environmental justice performance (CEJP) 'scores' to 59 leading U.S. power companies and agencies, based on the environmental justice performance of the coal-fired power plants owned by each company. (For the complete ranking of these 59 companies, see Appendix 2). Similarly to the ranking of individual plants, it is important to emphasize that this is *not* a ranking of the total toxicity of the coal power plants owned by a particular company — in other words, the fact that a particular company receives a grade of F does not necessarily mean that it is among the biggest coal power producers in the United States, or that its plants produce the largest total amount of pollutants. Rather, it means that pollutants from that company's coal plants disproportionately impact low-income communities and communities of color the most.

Finding #3: Corporations that Receive an "F" on their CEJP Score Own all of the Worst Offending Coal-Fired Plants in the U.S.

Out of the 59 coal energy companies examined for this study, twelve earned a "F" as their CEJP grade. These 12 companies own 39 of the 75 failing plants — including *all* of the twelve worst plants. Below are CEJP grades for the worst offending U.S. coal power companies. (For the complete ranking, see Appendix 2).

1. **Edison International**
2. **FirstEnergy Corp.**
3. **UniSource Energy Corp.**
4. **Public Service Enterprise Group (PSEG)**

5. **GenOn Energy Inc.**
6. **Dominion Resources Inc.**
7. **Duke Energy Corp.**
8. **Wisconsin Energy Corp.**
9. **Cogentrix Energy (owned by Goldman Sachs)**
10. **Xcel Energy Inc.**
11. **Southern Company**
12. **DTE Energy Company**

The Only Way to Completely Stop the Harmful Effects of a Coal Plant Is to Close It

It is often argued, from a regulatory perspective, that SO_2 and NO_X emissions controls can substantially mitigate public health damage from coal power plants. There is clearly a large amount of truth to this. Simply put, the less SO_2 and NO_X that are churned out into these low-income communities of color, the better the quality of life for these residents and communities. A coal plant with SO_2 and NO_X emissions controls is certainly less destructive than a coal plant without such controls.

However, there is no silver bullet that will make these plants clean—the only truly effective way to stop coal fired power plants from polluting the communities in which they are located, is to close them.

Recommendations

The central foci of this effort are to advance energy efficiency and clean energy while ensuring that measures are in place to reduce community exposure to pollutants as the nation makes the shift to a clean energy future. Below is a summary of recommendations to advance solutions that safeguard communities against coal-fired power plant pollution:

I. **Communities should educate themselves, engage in organizing and advocacy efforts to enforce accountability and social responsibility in energy production.** Specific actions should include the following:

   - *Communities should educate themselves on the impact of coal-fired power plants on public health and the local environment.* Public health, environmental, civic, and other organizations should ensure that communities are educated about the impact of coal-fired power plants on community wellbeing. The NAACP, LVEJO, and IEN already prioritize education of its members and communities; however, in each conversation that is held with their constituencies, they consistently hear that people do not know about the impact of the coal-fired power plants in their communities. Communities must be further educated in order to ensure that they are informed enough to be able to make independent choices about whether and/or how to take action to defend their right to breathe clean air.

- *Communities should increase organizing to reduce and eradicate harm caused by energy-related policies and practices.* Communities should engage in the process of finalizing related EPA rules by voicing their opinions, providing comments, and engaging in awareness-raising as well as advocacy to support and guide the development of strong rules with stringent standards.
- *Communities should advocate for improved corporate social responsibility in energy production.* Community organizations should engage directly with plant owners to advocate for their rights to clean air, and negotiate regarding plant closure and development of energy efficiency initiatives as well as alternative electricity and revenue generating industries, which preserve the health of communities, protect the planet, and create economic opportunities for the communities hosting transitional enterprises. Community organizations and others should also ensure that shareholders recognize the impact of the actions of the industries they fund on communities. Finally, community organizations and others should engage in nonviolent civil disobedience and/or other tactics of nonviolent protest where warranted, if all other measures are not effective in ending the polluting practices that are impacting the wellbeing of communities.

II. **Philanthropic organizations should support grassroots community organizing to reduce pollution and increase clean alternatives**. Communities will require support as they seek to become informed and take action to advance policies and practices that ensure the U.S. shifts to energy efficiency and clean energy, while strengthening regulations to safeguard communities and the environment from polluting facilities.

III. **Research Entities must increase research on the impact of energy choices on communities.** Research institutions should deepen their focus on examining the myriad connections between energy production, air pollution, public health and wellbeing, and climate change.

IV. **Policymakers must advance just energy policies and other specific legislative interventions to reduce the harm produced by coal-fired power plants.**

- At the United Nations Framework Convention on Climate Change, the United States must exert strong leadership in advancing aggressive U.S. and global targets for emission reductions, fair and effective climate finance, and support for the Green Climate Fund, with an emphasis on ensuring that most affected countries and communities control decision-making regarding resource allocation.
- The Clean Air Act must be preserved, but strengthened. This bedrock environmental and public health policy is the cornerstone of measures to regulate pollution caused by a wide variety of economic factors. Communities should ensure that their elected officials recognize the critical significance of this policy for their wellbeing, and ensure that this policy maintain full authority, with the EPA as its steward.

- Congress must enact policies to shift from subsidizing harmful fossil fuel industries to significantly increasing subsidies for clean energy to ensure that clean energy is an affordable and accessible alternative.
- Rules being proposed by EPA in 2011-2012 including the Mercury and Air Toxics Rule, the Greenhouse Gases Rule, the Cross-State Air Pollution Rule, etc., that target the emissions of mercury, arsenic, lead fine particles, methane, carbon dioxide, sulfur dioxide, nitrogen oxide, etc., must be expeditiously finalized and must include the most stringent standards.
- State and federal energy efficiency and clean energy grant programs must be increased to incentivize a significant scale-up of initiatives to reduce energy use and advance clean alternatives to energy production.
- Local elected officials must support the development of ordinances at the city/metropolitan/local level to regulate emissions, such as the ordinance being considered in Chicago.

V. Corporations and plant owners must act responsibly to safeguard communities against pollution from coal. Acting responsibly includes taking the following action:

- Companies that are polluting communities nationwide must cease financing anti-regulatory lobbying and adhere to existing and emerging standards regarding emissions.
- Corporations must immediately transition from polluting processes that poison communities and begin to engage with communities in good faith discussions regarding equitable and safe transition plans that incorporate local concerns.
- Corporations must create partnerships with communities to execute joint economic ventures around energy efficiency and clean energy, to ensure that there is no loss of jobs, revenue, or needed energy for the communities where coal plants are closing.

Conclusion

Affirmative changes can be made to our energy practices that will ensure that we have the power we need, the jobs that sustain our livelihoods, and the preservation of health and wellbeing in all communities.

Closing the 75 “failing plants” highlighted in this report would reduce U.S. power production by only eight percent. This amount could easily be substituted by increased energy conservation and renewable energy production. The key point is that doing so would *reduce the number of Americans living within three miles of a coal plant by 67 percent*, and therefore reduce thousands of hospitalizations, deaths, and incidents of illness in communities affected by these plants.

The message arising from this report is simple: *these polluting life-compromising coal plants must be closed,* and the path to doing so involves engagement from all to ensure policies and systems protect public health and maintain the economic wellbeing of communities, while providing the energy we all require to function.

For more on Recommendations for Environmental Advocates, please see the ***"Call to Climate Justice Action"*** document.

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[i] U.S. Energy Information Administration. "Net Generation by Energy Source." Mar. 15, 2010. http://www.eia.doe.gov/cneaf/electricity/epm/table1_1.html

[ii] U.S. Energy Information Administration. "Electricity Net Generation: Electric Power Sector, 1949-2008." Accessed March 2010. http://www.eia.doe.gov/aer/txt/ptb0802b.html

[iii] Note: Demographic data in this report are based on the 2000 Census.

[iv] National Research Council. Committee on Health, Environmental, and Other External Costs and Benefits of Energy Production and Consumption. *Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use*. National Academies Press, 2010, pp. 82-94.

[v] NRC, pp. 94-99.

[vi] Russell, Randy (16 May 2007). "The Greenhouse Effect & Greenhouse Gases". University Corporation for Atmospheric Research Windows to the Universe. Retrieved 27 December 2009.

[vii] U.S. Energy Information Administration. "Emissions of Greenhouse Gases Report." Nov. 28, 2007. http://www.eia.doe.gov/oiaf/1605/archive/gg07rpt/index.html#units

[viii] U.S. EIA. "Emissions of Greenhouse Gases Report."

[ix] United Nations. "Millennium Development Goals Report 2009: Statistical Annex." 2009, p. 15. http://mdgs.un.org/unsd/mdg/Resources/Static/Data/2009%20Stat%20Annex.pdf

[x] U.S. Environmental Protection Agency. "Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act." Accessed July 2011. http://www.epa.gov/climatechange/endangerment.html

[xi] World Resources Institute. "Climate and Atmosphere — CO_2 Emissions: Cumulative CO_2 emissions, 1900-2005." Accessed June 2010. http://earthtrends.wri.org/text/climate-atmosphere/variable-779.html

[xii] International Climate Justice Network. "Bali Principles of Climate Justice." CorpWatch, Aug. 28, 2002. http://www.corpwatch.org/article.php?id=3748

[xiii] Environmental Integrity Project. "Dirty Kilowatts: America's Most Polluting Power Plants." July 2007. http://www.dirtykilowatts.org/Dirty_Kilowatts2007.pdf

[xiv] In recent years, coal power companies and supportive politicians have argued that CO_2 emissions from coal power plants can be limited using carbon capture and sequestration (CCS) technology; however, CCS is fraught with numerous technical problems, would be prohibitively expensive, and is years, if not decades, away from commercial viability. For more information on CCS, see the "Key Terms" section, or Greenpeace's report "False Hope: Why Carbon Capture and Storage Won't Save the Climate."

[xv] U.S. EIA. "Net Generation by Energy Source."

[xvi] EPA, "1970-2008 Average Annual Emissions, All Criteria Pollutants."