Pennsylvania Advanced Energy Reality Campaign

How to Make the Best of Act 213:

Making Renewable Energy out of Alternative Energy

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Despite an outpouring of grassroots opposition, Pennsylvania's state legislature voted on November 20th, 2004 to pass an "Alternative Energy Portfolio Standard" (Act 213) that poses as an innovative clean energy bill, while encouraging many dirty industries to be viewed as *renewable* in Pennsylvania. Other states, such as AZ, CA, CO, CT, HI, IA, MA, MD, ME, NJ, NM, NY, NV, RI, TX, WI, have passed similar bills... some better, some worse, some structured differently... but none so dirty as Pennsylvania's!

What started as an effort to promote renewable energy in Pennsylvania has turned into legislation that supports fossil fuels and incineration, while doing very little to develop new wind power. The new energy will be distributed in the following manner (grayed items are considered dirty):

Tier I
8% by 2020

- "Low-impact" hydropower
- Burning of toxic landfill gas
- Wind energy
- Coal-mine methane
- Animal waste digesters
- Burning of trees and crops
- Poultry waste incineration
- Solar energy (0.5% by 2020)

Tier II
10% by 2020

- Waste coal burning
- New coal plants (using gasification technology)
- Trash and industrial waste incineration
- Wood waste and paper mill waste burning
- Large-scale hydropower
- Energy efficiency

Given the option, many electricity companies will choose to fulfill their 8% and 10% requirements using the dirty energy options. **However, we as consumers and students can encourage our local and regional utilities to choose the clean options**. Our words and the consumer power leveraged by our universities can have an enormous impact on the way this misconceived bill plays out. Together, we can make the best of Act 213!

This action packet is structured as follows:

1. Which utility is in my area?
2. When will all of this begin to happen?
3. The Truth about Act 213
4. Fact Sheets for each listed technology
5. Action Ideas
    a. Consumer letters
    b. University support and divestiture
    c. Media coverage
    d. Contests
    e. Local community outreach
6. Sample Letters, Sample Stickers, Sample Postcards
7. Web resources

Colleges and Universities in Electric Distribution Company (EDC) Territories

Allegheny Power
Penn State University (State College)*
Clarion Univ. of PA
St. Vincent College
Waynesburg College
California Univ. of PA
Washington and Jefferson College
Robert Morris Univ.
Geneva College
Slippery Rock Univ. of PA

Duquesne Light
Carnegie Mellon*
University of Pittsburgh*
Carlow College
Chatham College
Duquesne Univ.
La Roche College

Met-Ed – Penelec (FirstEnergy)
Lafayette College*
Allegheny College*
Mercyhurst College*
Shippensburg University*
Kutztown University*
York College*
Albright College
Lebanon Valley College
Pennsylvania State University - Harrisburg
Gettysburg College
Mansfield Univ. of PA
Juniata College
Edinboro Univ. of PA
Indiana Univ. of PA
St. Francis Univ.
Messiah College

PECO
Bryn Mawr College*
Drexel University*
University of Pennsylvania*
Saint Joseph's University*
Swarthmore College*
Philadelphia University*
Temple University*
Delaware County Community College*
Eastern University*
Chestnut Hill College
LaSalle University
University of the Arts
Haverford College
Villanova University
Rosemont College
Cabrini College
Ursinus College
Gwynedd-Mercy College
Arcadia University
West Chester Univ. of PA
Cheyney Univ. of PA
Widener University

Penn Power
Westminster College*
Grove City College

PPL Electric
Wilkes University*
Moravian College*
Muhlenberg College*
University of Scranton*
Marywood University*
Dickinson College*
DeSalles Unviersity
Lehigh University
Cedar Crest College
Franklin & Marshall College
Elizabethtown College
King's College
Lycoming College
Bloomsburg Univ. of PA
Susquehanna University
Lock Haven Univ. of PA
Millersville Univ. of PA

UGI Electric
College Misericordia

Citizens Electric
Bucknell University

* Climate Campaign Member Schools

Electric Company Customer Service Addresses

Enter these addresses when sending letters and postcards.

PECO Energy Company
Customer Service Center
2301 Market Street
P.O. Box 8699
Philadelphia, PA 19101

1-800-494-4000

PPL EnergyPlus
Customer Service
827 Hausman Road
Allentown, PA 18104

Met-Ed
Customer Service Center
2800 Pottsville Pike
P.O. Box 16001
Reading, PA 19612

1-800-545-7741

Allegheny Power
Greensburg Corporate Headquarters
Customer Service
800 Cabin Hill Drive
Greensburg, Pa. 15601-1689

Penn Power
Customer Service Center
2800 Pottsville Pike
P.O. Box 16001
Reading, PA 19612

1-800-720-3600

Duquesne Light
Customer Service
708 Smithfield Street
Pittsburgh, PA 15219

1-888-393-7100

UGI Electric Division Headquarters
Customer Service
Hanover Industrial Estates
400 Stewart Road
P.O. Box 3200
Wilkes-Barre, PA 18773

Citizens Electric Company
Customer Service
PO Box 551
1775 Industrial Blvd.
Lewisburg, PA 17837

When will all of this begin to happen?

SB 1030 Timeline					
	begins	**ends**	**Tier 1**	**solar**	**Tier 2**
reporting year 1	6/1/2005	5/31/2006		0.00%	4.20%
reporting year 2	6/1/2006	5/31/2007	1.50%	0.00%	4.20%
reporting year 3	6/1/2007	5/31/2008	2.00%	0.00%	4.20%
reporting year 4	6/1/2008	5/31/2009	2.50%	0.00%	4.20%
reporting year 5	6/1/2009	5/31/2010	3.00%	0.02%	6.20%
reporting year 6	6/1/2010	5/31/2011	3.50%	0.02%	6.20%
reporting year 7	6/1/2011	5/31/2012	4.00%	0.02%	6.20%
reporting year 8	6/1/2012	5/31/2013	4.50%	0.02%	6.20%
reporting year 9	6/1/2013	5/31/2014	5.00%	0.02%	6.20%
reporting year 10	6/1/2014	5/31/2015	5.50%	0.25%	8.20%
reporting year 11	6/1/2015	5/31/2016	6.00%	0.25%	8.20%
reporting year 12	6/1/2016	5/31/2017	6.50%	0.25%	8.20%
reporting year 13	6/1/2017	5/31/2018	7.00%	0.25%	8.20%
reporting year 14	6/1/2018	5/31/2019	7.50%	0.25%	8.20%
reporting year 15	6/1/2019	5/31/2020	8.00%	0.50%	10.00%

When will companies come into compliance with Act 213?

UGI	5/31/2006
Wellsboro	5/31/2006
Lewisburg	5/31/2006
Pike	5/31/2006
Penn Power	12/31/2006
Duquesne	12/31/2007
West Penn	12/31/2008
PPL	12/31/2009
PECO	12/31/2010
Met Ed	12/31/2010
Penelec	12/31/2010

The Truth about Senate Bill 1030:

The environmental community is largely opposed to SB 1030

SB 1030 was opposed by: ActionPA, Citizen Power, Pennsylvania Environmental Network, Student Environmental Action Coalition, Green Party of Pennsylvania (and various county Greens groups), Sierra Club - Pennsylvania Chapter, PennEnvironment, State PIRGs, Clean Air Council, and a wide array of local grassroots environmental organizations throughout Pennsylvania.

It was supported by PennFuture and their closely-allied Pennsylvania Council of Churches. No other environmental groups organized for the legislation other than a handful of professional energy development organizations (such as the sustainable development funds) which stood to gain financially from the legislation. Not a single grassroots, democratically-structured organization supported SB 1030.

PA is not the first coal state to pass an electric generation portfolio standard

Arizona, Colorado, New Mexico and Texas all have renewable portfolio standards and are also coal states. Unlike Pennsylvania, none of those states allowed fossil fuels to be part of their RPS laws. Pennsylvania is the 4th largest coal producer. Texas is 5th. Colorado is 8th. See list of top 10 coal producing states.

SB1030 is not stronger than RPS laws in New Jersey, Maryland and New York

SB1030 is, without a doubt, the dirtiest "RPS" in the nation.

The following is a list of 20 ways in which Pennsylvania's SB1030 is weaker than RPS laws in neighboring states:

1. **Fossil Fuels**: Pennsylvania is the first state to allow fossil fuels in a portfolio standard (with the occasional exception of fossil-generated hydrogen for fuel cells, which are allowed in some RPS laws, but are too expensive to compete anyway).
2. **More Dirty Than Clean Energy**: Pennsylvania is the only state with a dirty tier larger than the "clean" tier.
3. **Easy Way Out**: Pennsylvania may be the first to have a force majeure clause, allowing the PUC to reduce the law's requirements if companies fail to develop the proper amount of "alternative" energy. This clause could make it difficult for solar or wind power developers to get investors if the investors realize that the market provided in PA isn't guaranteed, like it is in other states.
4. **Hydropower**: Pennsylvania has no size limit on hydroelectric power in Tier I. Maryland limits it to 30 megawatts (MW). New Jersey doesn't even allow hydro in Tier I and limits Tier II hydro to 30MW. New York also has stricter hydro requirements. Pennsylvania is the only state to allow energy from hydroelectric pumped storage to qualify (it's allowed in Tier II), regardless of where the electricity came from to pump the water uphill.
5. **Ocean Power**: Maryland, New Jersey and New York all allow ocean-based energy sources. Pennsylvania doesn't.
6. **Chicken Poop**: Pennsylvania is the only state to promote arsenic-spewing poultry litter incinerators without qualification (New Jersey requires that it meet a "sustainability" review; Maryland (the state where this has been proposed) puts it in Tier II and allows it only if it won't compete with Purdue's pelletization facility in Delaware -- a far more environmentally-preferable option to burning the waste).

7. **Burning Toxic Paper Pulp**: Pennsylvania is the only state to use a portfolio standard to promote burning paper pulping industry liquors -- a toxic waste byproduct that can contain high levels of chlorine, creating dioxins when burned. New Jersey's law specifically bans it.
8. **Fuel Cells**: Maryland and New Jersey's RPS laws allow fuel cells to be used only if their hydrogen sources are produced with renewable fuels. Pennsylvania and New York don't place any limits on fuel cell fuel sources, allowing them to come from natural gas or other non-renewable sources.
9. **Trash Incineration**: Pennsylvania allows all existing trash incinerators to qualify and places no limits on them. New York doesn't allow trash incineration, recognizing that it's a source even dirtier than conventional coal power plants. New Jersey allows them, but places regulatory restrictions on them, including source reduction and recycling requirements. Maryland allows them, but ends their Tier II requirement in 2018, so that they're not subsidized forever. Maryland also places minimum recycling requirements on them. New Jersey and Maryland also have small-enough Tier II categories so that there's little room for incinerators from other states.
10. **No Dirty Tier II in New York**: New York's RPS has no dirty "Tier II" category. Their Tier II category is a small customer-sited category that consists only of wind, solar and fuel cells.
11. **Larger new renewable requirement in New York**: New York's RPS has larger requirements for new renewables. Their total RPS goal is 25% (they're already at 19%). Since all of the increase must be new renewables (with an exception for some existing ones if they prove that they're economically at risk of shutting down), this represents more new renewable energy than Pennsylvania's new law will create a market for.
12. **Public Purchasing System in New York**: New York's RPS avoids the problematic market-based approach, by adopting a public, central procurement model, which is far more protective of consumers and which does away with the need for penalty fees for non-compliance.
13. **Penalty Fees to be Privately Managed**: New Jersey and Maryland place penalty fees into public clean energy funds to be used to develop new renewable energy sources. Pennsylvania's law gives these penalty fees to a private cabal of corporate-friendly "environmentalists" to distribute for the development of "alternative" energy sources (which can include fossil fuels and other dirty technologies allowed in SB1030).
14. **Dirty Tier is a Floor, not a Ceiling**: New Jersey and Maryland (and other states with 2-Tier RPS laws, such as Connecticut) allow Tier I resources to be used to meet the Tier II requirements, providing cleaner options to fill the dirty tier with. Pennsylvania doesn't allow this.
15. **No Extra Credit for Cleaner Energy**: Maryland's RPS (and RPS laws in a few other states) gives extra credit for using the cleaner technologies within the Tier I requirement. Pennsylvania doesn't have this.
16. **Fails to Protect Green Energy Marketplace**: New York's RPS has a separate track dedicated to supporting the voluntary green energy marketplace. Pennsylvania just joined New Jersey and Maryland in having a portfolio standard that allows double-counting with green pricing programs, threatening the viability of the voluntary purchasing market. After all, who'd wants to pay more for something that's already required by state law?
17. **Fails to Prevent Double-Counting with Regulated States**: New Jersey has limited protection against double-counting of energy sales from trash incinerators or hydroelectric dams in non-deregulated states like West Virginia where these energy sources are paid down by captive ratepayers.
18. **Cost Recovery**: Pennsylvania has overly generous cost-recovery, allowing energy companies to pass through the costs of paying non-compliance fees and failing to protect consumers against unreasonable charges. Maryland, on the other hand, allows compliance fees to be charged to ratepayers only if they show that paying the penalty fee is the least cost option, that insufficient resources are available, or that a provider defaulted on supplying credits.
19. **Transparency**: New York's procurement will be entirely publicly-run, subject to state freedom-of-information laws. Maryland's credit trading system will be managed in the public sector and the

credit trading information will be made available to the public on the Internet. Pennsylvania's new law requires that the credit trading be administered by a private body (probably PJM) and requires public disclosure of a registry, but isn't subject to the full disclosure that comes with right-to-know laws.

20. **Wind Turbine Siting**: Maryland's RPS law sets up a technical advisory group to develop recommendations on Siting, operational, and monitoring criteria for wind-turbine siting in order to reduce bird and bat kills. Pennsylvania doesn't.

There are three ways in which Pennsylvania's "Alternative Energy Portfolio Standard" law is better than RPS laws in other states:

1. **Energy efficiency**: Pennsylvania is the second state (after Hawaii) to include energy efficiency as an option.
2. **Low-Impact Hydroelectric**: Pennsylvania is the first to adopt a "low-impact" hydroelectric definition, setting some mild criteria for acceptable hydroelectric dams. Unfortunately, the size limit in earlier versions of the legislation was raised from 40MW to 50MW and -- before passage -- was ultimately removed entirely. Now, even large dams, if they meet "low-impact" criteria, can be used to fill the Tier I requirements.
3. **Solar Share**: SB1030 requires that 0.5% of Pennsylvania's energy come from solar by 2020 (if the force majeure clause doesn't kill this requirement). Arizona and Nevada have solar shares that are slightly higher (0.66% by 2007 and 0.75% by 2013, respectively), but Pennsylvania has the strongest solar share in the east (New Jersey's is 0.16% by 2008). Colorado is the only other state with a solar share so far (0.4% by 2015). Pennsylvania's large electric demand also creates the largest market for solar of these states. Unfortunately, Pennsylvania's solar share is the slowest-growing (it'll still be at 0.0203% in 2014 before making a 12-fold jump to 0.25% in 2015, then 0.5% in 2020).

SB1030 will not cause 3,600 MW of new wind to be developed

Platts' Analytics group estimated that 3,600 megawatts (MW) of new wind energy capacity would be developed by 2016 to meet the Tier I requirements. It would be wonderful if this were true, but there are a few factors that Platts' analysis didn't account for:

- **Force Majeure**: The Platts study assumed that all of the portfolio standard requirements would be met and didn't account for the possibility that the Public Utility Commission might invoke the force majeure clause in SB1030, allowing them to reduce the requirements if energy corporations fail to develop the required amount of "alternative energy" resources. The existence of this clause could make it difficult for wind developers to find investors, if investors realize that the market provided in Pennsylvania isn't guaranteed, like it is in other states.
- **Hydroelectric Power**: The Platts study used a very conservative estimate of how much hydroelectric power would be competing with wind for the "8% by 2020" Tier I requirement. The amount of hydropower competing with wind could be much higher, depending on several issues:
    - **New vs. Existing**: SB1030 has ambiguous language with regard to whether "low-impact" hydropower must be new or not. The "alternative energy sources" definition states explicitly that it includes "existing and new" sources, but part of the low-impact hydropower definition uses the term "incremental" -- indicating that perhaps it includes only new generating capacity at an existing dam. It doesn't define any date for which this new capacity must be installed, however.

      The Pennsylvania Public Utility Commission acknowledges that the legislation is ambiguous and that this issue is unresolved. There is no time frame in which this giant loophole will be

resolved one way or another. Platts assumed that the definition limits hydro to only new capacity, which resulted in a far smaller amount of hydro capacity competing with wind in their model.

- **No Size Limit**: Earlier versions of SB1030 put a 40MW cap on the size of "low-impact" hydropower. This was changed twice in last-minute amendments, first by raising the cap to 50MW, then by totally removing the cap. Hydropower of any size can now qualify for Tier I. An 80 MW dam in West Virginia is currently undergoing "low-impact" certification.
- **Low-Impact:** Corporations have an easy time coopting and controlling environmental organizations. The "low-impact" certification standards are controlled by a non-profit organization. If it turns out that the "low-impact" criteria are difficult for a large number of hydroelectric dams to meet, energy corporations will have an economic incentive to influence the criteria in order to avoid the more expensive option of developing wind power or other Tier I resources.
- **No Real Competition with other state RPS laws**: Since no other state RPS has a "low-impact" hydropower criteria, any dams meeting "low-impact" hydropower criteria can fetch a higher price for their credits by serving Pennsylvania's Tier I requirement. All other states place a size limit on hydropower in their main or first tier, so they won't compete with Pennsylvania's Tier I for most hydropower capacity. Wisconsin and Minnesota set a limit of 60MW. New Jersey doesn't even allow hydropower in its first Tier and limits their smaller Tier II requirements to small hydro (under 30MW). Maryland's Tier I requirement limits hydro to those under 30MW. 99% of Manitoba's substantial hydro capacity is over 60MW. Of the remaining hydro in MISO-PJM, 58% is over 60MW and 71% is over 30MW, ensuring that most hydropower will be ineligible for other states' requirements, making it easy for Pennsylvania's "clean" tier to fill up with cheap hydropower, leaving little or no room for new wind power.

If only about 20% of the hydropower in the MISO-PJM territory qualifies as "low-impact," there will be little or no room left in Tier I for new wind power. At least 40% of the available hydropower is able to meet low-impact criteria

Will SB1030 really clean our air and water??

PennFuture has put forth unsupported and unsupportable claims about how SB1030 will "help clean our air and water." They repeat industry propaganda by stating that "the waste coal plants in Tier II will help reduce water pollution." They even go as far as saying that "there's nothing in Tier II that makes existing air emissions worse" and that "between now and 2020, Pennsylvanians would avoid approximately... 67 million tons of carbon dioxide; 59 thousand tons of nitrogen oxide; and almost 600 thousand tons of sulfur dioxide."

SB1030 will help to keep open 16 uneconomical small waste coal power plants in Pennsylvania and West Virginia that release 9.2 million tons of carbon dioxide, 55 thousand tons of nitrogen oxides, and 19 thousand tons of sulfur dioxide every year. On the basis of these three pollutants alone, it seems SB1030's support for waste coal will undo most of the supposed air quality benefits PennFuture claims it'll bring us.

PennFuture carefully worded their statement about making "existing air emissions worse." Apparently, it's OK to help keep existing filthy power generation operating, as long as it's not making things worse. Unfortunately, SB1030 can make air and water pollution worse as well.

This is because Tier II includes support for the following new pollution sources:

- **New Coal-Burning Power Plants --** There are about 100 new coal-fired power plants planned in the U.S. Some of these are the "clean coal" kind that uses gasification. SB1030 includes "integrated combined coal gasification technology" in Tier II. These types of coal burners will qualify for Tier II credits in Pennsylvania. It's possible that the electricity-generating part of the proposed coal-to-oil refinery in Schuylkill County will qualify. Similar coal-to-oil refineries are planned for western Pennsylvania, West Virginia and Illinois.
- **New Waste Coal-Burning Power Plants --** There are 3 large new waste coal burners planned for western Pennsylvania communities, as well as proposals in West Virginia. The largest waste coal burner in the nation is proposed for Greene County, PA. See the section below for more info on waste coal.
- **Paper Pulp Liquor and Wood Waste Burning --** SB1030 includes the following in Tier II: "by-products of the pulping process and wood manufacturing process including bark, wood chips, sawdust and lignin in spent pulping liquors."

  Pulping liquors are toxic byproducts from pulp and paper mills that contain chlorinated chemicals, including dioxins. Burning this waste releases dioxins, formaldehyde and other hazardous contaminants.

  Industrial-scale wood waste burners are also air-pollution sources and can have indirect impacts on the wood material supply, causing increases in logging on our state and national forests. The largest wood burning "biomass" power plant in the nation is currently planned for southeastern Ohio and has specifically been watching the policy developments in Pennsylvania, hoping to sell "green" power into the state. The power plant would be located near the Wayne National Forest and has listed logging operations in the forest as a possible source of fuel.

Fact Sheet: Tier I – Landfill Gas

http://www.energyjustice.net/lfg/

Landfill gas and other "biomass" (incineration) technologies are cheaper to develop than wind (which is the next cheapest "renewable" technology). Energy from landfill gas projects also provides the easiest-to-obtain new "renewable" energy. Many subsidies exist for landfill gas that make it even more viable. Unfortunately, when we subsidize landfill gas, we subsidize landfills and therefore make it cheaper to throw away garbage rather than recycle it.

Landfill gas is generated by the decomposition of organic matter in landfills, the vaporization of certain ingredients in a landfill, and the chemical reactions caused by certain active chemicals. "Landfill gas" is clearly not the same thing as "natural gas" or simply "methane" (CH_4). The term "landfill methane," often used by the Environmental Protection Agency (EPA) to promote landfill gas as "green energy," deceptively implies that landfill gas is made up of mostly methane, like natural gas. In fact, landfill gas is only about 40-60% methane, with the remainder being mostly carbon dioxide (CO_2).

Landfill gas is far more polluting than methane. Landfill gas is contaminated with hundreds of toxic chemicals, including mercury and many chlorinated organics, which can form dioxins (the most toxic chemicals ever studied) when burned. By the numbers, landfill gas is actually dirtier than coal-fired power plants for at least four major gaseous pollutants and contains similar concentrations of mercury.

Landfill gas emissions also contribute to global warming. The methane in the gas has a global warming potential 31 times greater than CO2. Burning this gas can reduce the global warming impact, but there are a number of reasons why doing so fails to reduce greenhouse gas emissions. First, using the best technology only 50% of landfill gas can be collected, which means that a significant portion of the methane escapes into the atmosphere. Second most landfills do not install collection systems in the first 7-10 years of operation, allowing the first wave of methane production to proceed uncontrolled. Third, incentives for landfill gas production will encourage operators to use technology, which increases absolute methane production, thereby emitting more toxins and also more methane. Landfills will always be a major contributor to climate change.

For these reasons, landfill communities in Pennsylvania have rejected the notion that burning landfill gas is "green" or "renewable" energy. Toxins ought to be filtered out and isolated prior to burning landfill gas, and no subsidies should be given to landfills to do so.

Fact Sheet: Tier I - Coal-Bed Methane (CBM)

http://www.energyjustice.net/naturalgas/cbm/

According to the Coal-Bed Methane Association of Alabama, 13% of the land in the lower 48 United States has some coal under it, and in all coal deposits methane is found as a byproduct of the coal formation process. Historically, this methane was considered a safety hazard in the coal mining process and was purposely vented to the atmosphere. Recently, however, companies have begun to capture the methane found in coal mines, as well as recover methane from coalbed deposits that are too deep to mine. As with conventional gas wells, hydraulic fracturing is used as a primary means of stimulating gas flow in CBM wells. Another gas stimulation technique, unique to CBM wells, is known as cavitation (also known as open-hole cavity completion).

Water Quality and Methane/Hydrogen Sulfide Migration

A study conducted by the US Environmental Protection Agency (EPA) documents a number of examples of water quality impacts and other issues encountered after CBM extraction occurred. These include reported incidents of:

- Explosive levels of hydrogen sulfide and methane under buildings and inside homes
- Death of vegetation (possibly due to seepage of methane and decreased air in root zones)
- Increased concentrations of methane and hydrogen sulfide in domestic water wells
- Cloudy well water with increased sediment concentrations following hydraulic fracturing
- Strong odors and black coal fines in water wells
- Brown, slimy well water that smelled like petroleum
- Decrease in well water levels and surface water flows following hydraulic fracturing
- The discharge of produced water creating new ponds and swamps that were not naturally occurring in particular regions

Due to the process of removing groundwater in order to stimulate gas flow, rural residents across the country have experienced decreases in the levels of their drinking water wells, as well as the drying up of springs. Monitoring wells maintained by the federal Bureau of Land Management in the Powder River Basin of Wyoming/Montana have indicated a drop in the aquifer of more than 200 feet. Estimates are that the water levels could drop to a total of 600-800 feet over the course of CBM development in that basin.

Spontaneous Combustion of Dewatered Coalbeds

The EPA have reported the spontaneous combustion and continued burning of completely dewatered coalbeds as a concern related to CBM development. When water is pumped out of coal seams, coal becomes exposed to oxygen, and coal fires are possible. This can occur spontaneously, or from lightning strikes or ignition by grass fires or wildfires. The areas most likely to be the site of a coal fire are along the edges of basins where coal is close to the surface and oxygen can most easily enter the coal when water is removed. At least one coal fire is burning north of Sheridan, Wyoming. This old fire could expand as dewatering

lowers the groundwater level (thus exposing more coal to oxygen). If coal fires occur, by-products, such as polycyclic aromatic hydrocarbons (PAHs), from the underground fires could potentially lead to contamination of underground sources of drinking water.

Compaction/Subsidence

Water is part of the fabric of a geologic formation.it holds the rock open. When water is removed from the rock, the pore spaces are left open, and the rock can collapse. In parts of the world, there have been incidents where enormous quantities of water have been removed from shallow aquifers, followed by as much as a 40-foot drop (or subsidence) in the surface of the land. The consequences of the subsidence have included the rupturing of utility lines (gas, sewage, water, electric), collapse of buildings, and damage to roads.

Decline in Property Values

A study in LaPlata County, Colorado, found that the location of a coalbed methane well on a property at the time of sale led to a net reduction in selling price of approximately 22%.

Fact Sheet: Tier I - Poultry Litter Incineration

http://www.energyjustice.net/fibrowatch/toxics.html

There are currently no poultry waste incinerators in the United States. There are proposals very much underway, and encouragement from state renewable portfolio standards is not what we need!

One of the most basic principles of incineration is that what goes in, must come out. There is no alchemy going on, so if there are toxic heavy metals like lead, mercury or arsenic going in one end, they must come out in the form of toxic ash and toxic air emissions. When another class of contaminants known as halogens enters an incinerator, you have another situation on your hands. These halogens (chlorine being the most prominent) are often released in the form of acid gases (contributing to acid rain and respiratory problems) and also are released in small volumes of extremely toxic chemicals called dioxins and furans (among the most toxic chemicals ever studied).

Arsenic Use in Chicken & Turkey Feed

According to the Environmental Protection Agency, "Organic arsenic compounds are extensively added to the feed of animals (particularly poultry and swine) in the United States to improve growth rates by controlling parasitic diseases." Roxarsone, or 3-nitro-4-hydroxyphenylarsonic acid, is currently the most commonly used arsenical compound in poultry feed in the United States, with a usage of 23 to 45 grams of chemical per ton of feed for broiler chickens for increased weight gain, feed efficiency, improved pigmentation, and prevention of parasites. Roxarsone is used in turkeys as well as chickens. By design, most of the chemical is excreted in the manure. Studies have shown arsenic concentrations in poultry litter to be between 15 and 35 ppm (parts per million).

The Case of Fibrowatt & Fibrominn

At these concentrations, one can expect that the 300,000 tons per year of chicken litter than Fibrowatt plans to burn at their proposed Hurlock, Maryland and Magee, Mississippi plants would contain 9,000 to 21,000 pounds (4.5 to 10.5 tons) of arsenic. Fibrowatt's first and largest proposal in the U.S. - one for 500,000 tons per year of turkey waste in Benson, Minnesota - would burn waste containing 15,000 to 35,000 pounds (7.5 to 17.5 tons) of arsenic each year.

Even if pollution control equipment were able to remove 99% of this arsenic, that would leave 90-210 pounds (150-350 for Minnesota) of arsenic air pollutants, making these incinerators a major source of arsenic air pollution. Any arsenic captured in pollution controls would not simply disappear, but would become part of the fly ash, which Fibrowatt plans to sell as fertilizer. This is a lose-lose proposition. The lower the air emissions (due to better pollution controls), the more toxic the ash "fertilizer" will be.

Dirtier than Coal Plants

The air pollution permit for the proposed Fibrominn project allows that incinerator to emit nearly 5 million pounds of regulated air pollutants each year, including 388,000 pounds of sulfuric acid, 236,000 pounds of

hydrochloric acid and 4,600 pounds of hydrofluoric acid. That's about 1,722 pounds a day of acid gases released into the sky above Benson, Minnesota. The permit states that "the proposed source will be a major source for hazardous air pollutants." This is a gross understatement. It would not only be "a major source" -- it would be the largest source of sulfuric acid in Minnesota (exceeding the COMBINED emissions of all of the coal-fired power plants and other sources in the state). It would also be the second largest source of hydrochloric acid air pollution in the state, beating out the state's paper mills, an oil refinery and all but one of the state's coal-fired power plants.

Chlorine Contamination and Dioxin

Dioxin was declared a Class 1 carcinogen, or "known human carcinogen," by the International Agency for Research on Cancer (IARC), an arm of the World Health Organization, in February, 1997. This was confirmed by the U.S. National Toxicology Program in their Ninth Report On Carcinogens. In 2001, Bush's EPA signed an international agreement seeking to eliminate sources of dioxin. Dioxin is formed accidentally in the course of most incineration processes and in certain other industries where chlorine is used. Incinerators are the largest known source of dioxin.

Dioxin wouldn't be much of an issue if the ingredients for forming dioxin weren't being placed in the incinerator. Dioxin production requires hydrocarbons and chlorine. Poultry litter is full of hydrocarbons, both in the manure and the bedding. There should be no shortage of chlorine in the poultry litter, either. This is apparent from the huge amount of hydrochloric acid that the Fibrominn incinerator would be permitted to release.

One of the sources of chlorine is from the various drugs and pesticides used in the poultry industry. Chlortetracycline is a chlorinated growth-promoting antibiotic widely-used in the broiler industry. Also, at least seven other drugs, most of them anticoccidials are chlorinated. One of the more commonly used anticoccidials is Amprolium. The residues in poultry litter of Chlortetracycline and Amprolium alone rivals that of Roxarsone, the most common arsenical. With this many tons of chlorinated drug residue in poultry litter, there is undoubtedly an ample supply of chlorine for dioxin formation. After all, dioxins are typically measured in nanograms and picograms, since they are toxic in such tiny amounts.

Fact Sheet: Tier I - Animal Waste Digesters

http://www.energyjustice.net/digesters/
http://motherlode.sierraclub.org/MethaneDigestersSIERRACLUBGUIDANCE.htm

Methane digesters are anaerobic (low or no oxygen) chambers which facilitate the breakdown of manure by anaerobic bacteria with the release of methane and other gases as a byproduct of their metabolism, ammonia, nitrogen, hydrogen sulfide, and sulfur dioxide. There currently exists an Energy Harvest Grant, which farmers can use to offset the cost of installing a digester.

Factory farm waste streams are so large and contaminated that methane digesters mitigate only a small fraction of their environmental damage. Equipment costs and maintenance for conversion to energy are high. The biogas must have ammonia, moisture, and particulate pollution (dust) removed, and then be compressed. It requires additional cleaning if it is to be sent into a natural gas pipeline.

Most environmental damage caused by factory farms, however, remains unabated. Excess nutrients which run off from waste lagoons or land-applied waste residuals suffocate the life out of our waters. The volume of solid waste remaining is not significantly diminished and requires proper disposal (Iowa State University et al. 2002). The solid waste is often land applied as "fertilizer" or "soil conditioner" but can pose problems because anaerobic digestion does not remove antibiotics and heavy metals passed by dosed swine and poultry. In addition, although pathogen numbers decrease, the decrease may be ephemeral as the pathogens regrow. Numerous studies have demonstrated that these toxic and pathogenic contaminants are entering the environment in substantial concentrations. Further, digesters pose a risk of explosion and create both nitrogenous and sulfurous gases which may be emitted. In sum, the potential for methane digesters to partially mitigate some of the extensive and pervasive damage caused by factory farms does not justify the use of this technology as a basis to support the development of new factory farms.

Federal and State Guidelines

The federal AgStar program has developed interim standards, presently voluntary, for the construction and operation of several types of manure digesters. Though these federal standards require compliance with local and state regulations, the adequacy and thoroughness of local and state regulations varies substantially across the nation and some states do not address digester operations at all (Iowa State University et al. 2002). This is not enough environmental protection. The Sierra Club wants the standards to become mandatory, inspections to be routine, and enforcement to be effective. We want testing and limits protective of natural resources, human health, and human quality of life to be set for metals, antibiotics, hormones, pathogens, odor-producing and air borne compounds, and other pollutants released from digester effluent, residual sludge, solid waste fertilizer, and other byproducts of both factory farms and methane digesters.

Fact Sheet: Tier II - Waste Coal

http://www.energyjustice.net/coal/wastecoal/

Waste coals are the low-energy-value discards of the coal mining industry. Waste coal is called "culm" in the eastern Pennsylvania anthracite coal region and "gob" or "boney" in the bitiminous coal mining regions (western Pennsylvania, West Virginia and elsewhere). Waste coal piles accumulated mostly between 1900 and 1970. The piles look like hills or small mountains that are dark and barren. Hundreds of millions of tons of waste coal and rock litter the landscape in mining states.

Why is it a problem?
Waste coal piles leach iron, manganese and aluminum pollution into waterways and cause acid drainage that kills neighboring streams. These piles sometimes even catch fire, releasing toxic pollution into the air.

Where is waste coal being burned?
There are currently 17 waste coal burning power plants, and 13 more that use it as a secondary fuel, with bituminous coal as their primary fuel. Thirteen of the 17 waste coal plants are in Pennsylvania. Over a dozen more are proposed, mostly in PA, WV and KY.

Low energy value
Nationally, waste coal has an average of 60% of the BTU value (British Thermal Units, a unit of energy) of normal coals. It can take up to twice as much waste coal to produce the same amount of electricity. This means that -- in most places -- waste coal burners can only be economically built where huge volumes of waste coal exist. It would cost too much to truck far-away low-BTU fuel to a centralized burner. Consequently, even if waste coal burning were a clean solution, it wouldn't deal with the problem of more isolated waste coal piles.

Waste Coal has More Mercury
Waste coal has higher concentration of mercury than normal coals. In West Virginia and nationally, gob has 4 times more mercury than bituminous coal. In Pennsylvania, gob has 3.5 times more mercury than bituminous coal. Culm has 19% more mercury than anthracite coal. Since more waste coal must be burned to produce the same amount of electricity as normal coal would, this means that -- in the states most affected by waste coal burning -- over 6 times as much mercury must be fed into a waste coal burner to produce the same amount of energy as a traditional coal power plant. For culm vs. anthracite coal, it takes nearly twice as much mercury. Bituminous waste coal also has higher levels of sulfur.

Where Does the Mercury Go?
Older coal power plants could not handle waste coal. In the late 1980's "circulating fluidized bed" (CFB) style power plants were built which could burn the low-energy waste coal. Because they were built after the 1970 Clean Air Act, these CFB power plants have pollution control equipment that the old ones don't have. This makes it easy for the waste coal industry to make the claim that their air emissions are cleaner than 1950s-era coal power plants.

Toxic Ash

Burning waste coal doesn't make the waste go away. If 100 tons of waste coal are burned, 63 tons will remain as waste coal ash. The rest goes out the smokestack as air pollution.

Since far more mercury and other toxic contaminants enter a waste coal burner to produce a given amount of electricity, these high levels of toxic contaminants have to come out somewhere. Toxic metals cannot be destroyed by burning them. To the extent that they are captured in pollution controls (protecting the air), they are then concentrated in the highly toxic ash that ultimately threatens the groundwater wherever this ash is dumped. Waste coal burners have cleaner air emissions than antiquated coal plants due to their better pollution controls, but this only means that the ash is far more toxic, since the highly toxic particulates captured in pollution control equipment end up in the ash. The industry claims that 99.8% of the mercury in the fuel is captured and ends up in their ash.

Waste coal ash is dumped in communities not far from the waste coal burners, threatening the groundwater with leaching lead, mercury and other poisons. Power plant waste is allowed to be dumped without the basic protections (landfill liners) that are required for dumping household trash. When burning any solid fuel, the resulting ash has a higher surface area than the raw, unburned material. The dangers of toxic leaching from ash can be expected to be greater than from the unburned waste coal. Just like with coffee, running water over coffee grounds leaches far more coffee out than if you ran water over whole coffee beans.

The industry claims that by injecting limestone into the ash, the ash becomes impervious to leaching. However, this has not been proven and it seems likely that the alkaline affects of the lime would afford only temporary protection, especially since the region where most of the waste coal burners are (Pennsylvania, West Virginia) suffers from the nation's worst acid rain.

The waste coal burning industry's own data shows that waste coal ash does in fact leach metals into groundwater, despite their public assertions. Ash at 2 of 12 facilities studied in Pennsylvania were shown to contain levels of arsenic higher than the maximum allowable concentration set forth for land application of sewage sludge. Of 221 samples of leachate from waste coal ash at the ash dumps, 23 samples (10.4%) exceeded a level 10 times higher than EPA's maximum contaminant level (MCL) for drinking water. Six samples exceeded this "10 times the drinking water standard" level for cadmium, as did single samples for chromium and selenium.

Beach Grass: the Safe and Affordable Alternative to Burning Waste Coal

Researchers at the Natural Resources Conservation Service found a very cheap and viable alternative to the conventional waste coal pile remediation method of grading, topsoiling, seeding and mulching. They found that beach grass, native to sandy beaches, thrives in waste coal piles and can establish enough plant cover to enable native plants to take root. This method has been shown to bring life back to long-dead waste coal piles for only 6-10% of the cost of conventional methods. Within a few years, beach grass enabled native plants to take over, allowing organic matter to accumulate around plants, forming a plant layer that stopped erosion, held water, cooled the surface, and looked better.

Fact Sheet: Tier II – Coal Gasification

www.greenpeace.org.nz/pdfs/CleanCoalBriefing.pdf

What is "clean coal"?

Coal is a highly polluting energy source. From mine to sky, it contaminates every step of the way. From acid drainage from coal mines polluting rivers and streams, to the release of cancer-causing dioxins and other toxins when it is burned, as well as pollution-forming gases and fine particulates that wreck havoc on human health, coal is a dirty business. It is a major contributor to climate change – the biggest environmental threat we face. It is the most carbon intensive fossil fuel, emitting 72% more carbon dioxide (the main driver of climate change) per unit of energy than gas.

Mercury is a particular problem. According to the United Nations Environment Programme (UNEP), mercury and its compounds are highly toxic and pose a global environmental threat to humans and wildlife.'2 Coal-fired power and heat production are the largest single source of atmospheric mercury emissions.3 There are no commercially available technologies to prevent mercury emissions from coal-fired power plants.

"Clean coal" is the industry's attempt to "clean up" its dirty image – the industry's greenwash buzzword. It is not a new type of coal. "Clean coal" technology (CCT) refers to technologies intended to reduce pollution. But no coal-fired power plants are truly 'clean'. Despite over 10 years of research, and $5.2 billion of investment in the US alone, scientists are still unable to completely remove harmful emissions from coal-fired power plants.

What is coal gasification?

Coal is reacted with steam and air or oxygen under high temperatures and pressures to form syngas (mostly carbon monoxide and hydrogen). Syngas can be burned to produce electricity or processed to produce fuels such as diesel oil.

- Integrated Coal Gasification Combined Cycle (IGCC) is the technology behind some experimental 'zero emission' projects. Three demonstration integrated gasification combined cycle (IGCC) plants exist in the U.S. Gasification plants turn coal into gas, and are touted as the next generation of coal-burning power plants, but have not been embraced by industry. It is considered the most suitable technology for possible carbon capture and storage but less reliable than other options. In IGCC a gas turbine burns syngas to produce electricity. Exhaust heat from the turbine is used to produce steam to power a steam turbine.
- Integrated Gasification Fuel Cells (IGFC) - a 'zero emission' technology under development that does away with the steam cycle. It uses hydrogen from coal gasification in a solid fuel cell to produce electricity.

Fact Sheet: Tier II - Paper Pulp Liquor and Wood Waste Burning

http://www.bnp2004.com/p/p212a.pdf
http://www.energyjustice.net/biomass/#wood

Pulping liquors are toxic byproducts from pulp and paper mills that contain chlorinated chemicals, including dioxins. Burning this waste releases dioxins, formaldehyde and other hazardous contaminants.

Pulp and paper mills generate wastewater popularly known as black liquor. Black liquor consists of toxic compounds that include wood extractives (e.g. lignin, lignin derivatives, tannins, stillbenes and resin acids) and some xenobiotic compounds (chlorinated lignin, dioxins, furans). United States Environmental Protection Agency has described these pollutants as “Priority Pollutants” and United Nations Environmental Program classified them as “Dirty Dozens” group of persistent organic pollutants (POP). These chemicals cause the effect of reduced light transmittance on organic productivity and mutagenecity. The colour due to these pollutants causes aesthetic pollution that persists in water stream over long distances. Thereby directly harming crops, aquatic life and human beings. Lignin and its degradation products like methylmercaptan, pentachlorophenol and sodium pentachlorophenolate present in the black liquor are the major contributors to the highly biological and chemical oxygen demand of the effluent. Toxic emissions from pulp mills are composed primarily of formaldehyde from burning of wood liquor in the recovery furnace, and various organic compounds such as methanol from pulp and liquor handling processes.

Cancer is one effect of wide concern; others are birth defects, neurological damage, damage to the body's natural defense system, and other fatal diseases.

Wood Waste

Wood waste is a very broad category. It includes - but is not limited to - wood pallets, construction / demolition wood waste, land clearing and right-of-way tree trimmings, Christmas trees, tree and shrub trimmings, paper and lumber mill waste, and wood products industry wastes.

Industrial-scale wood waste burners are also air-pollution sources and can have indirect impacts on the wood material supply, causing increases in logging on our state and national forests. The largest wood burning "biomass" power plant in the nation is currently planned for southeastern Ohio and has specifically been watching the policy developments in Pennsylvania, hoping to sell "green" power into the state. The power plant would be located near the Wayne National Forest and has listed logging operations in the forest as a possible source of fuel.

Wood from sources like tree trimming can be contaminated with pesticides which may add toxic inputs to a burner. Wood waste is not the same as wood cut fresh from a forest. Wood waste can come contaminated with wood preservatives, binders, paints, glues, plastic laminating materials or other non-wood materials. It can also mean particleboard, flakeboard, plywood, fiberboard and manufactured wood which may have plastic laminates, chlorinated adhesives, or phenol and urea formaldehyde resins. Other products which have been allowed to be burned in industrial wood burners include pelletized wood pulp from mills which may use chlorine bleach. Wood pallets have been discussed as biomass fuels. It is unreasonable to expect that the metals staples and nails are removed before incineration in industrial wood burners.

Painted wood may include lead or mercury (particularly in demolition debris). Mercury has been used as a fungicide in paint. Treated woods are usually coated with either creosote, copper chromium arsenate, or pentachlorophenol. Pentachlorophenol is a chlorinated compound which will form dioxins and furans when burned. Burning wood treated with copper chromium arsenate (CCA) will release arsenic and chromium VI.

Since copper serves as a catalyst in dioxin formation, any small bit of CCA-treated wood will greatly escalate dioxin emissions from industrial wood burners. Some wood burners that are permitted to be taking "clean" wood wastes have been allowed to accept a certain percentage of chlorinated wastes, since wood waste suppliers are unable to completely isolate all vinyl-coated material. In construction/demolition wastes, there is likelihood of PVC (polyvinylchloride) contamination from many sources common in building materials. For example, all household electrical wire sold in the U.S. is coated with PVC plastic. Since this wire is made of copper, it's an extremely dangerous mixture to have burned, since the copper will catalyze increased dioxin formation out of the PVC.

Industrial wood burners are not usually outfitted with advanced pollution controls. Some are equipped only with electrostatic precipitators (ESPs), which are known to boost dioxin emissions by retaining the exhaust gases in the temperature range where dioxins are formed.30 In addition to dioxins, furans and toxic metals, industrial wood burners also emit formaldehyde, phenols, benzene, napthalene (present in creosote), and chlorine, not to mention NOx, SOx, VOCs, and particulate matter.

Waste wood that is truly clean ought to be reused or made into paper, but not burned. Industrial wood burners, even if they start off burning a relatively "clean" supply of wood wastes, often end up seeking to burn more hazardous types of waste. In some cases, wood waste facilities have sought to burn wood tar waste.31 In other cases, state agencies have allowed industrial wood burners to dispose of their oily water by spraying it on their wood fuel.32 Some states actively encourage industrial wood burners to burn waste tires.33, 34 It has been argued by some corporations that they need to co-fire tires in order to become "leaner and meaner" in the deregulated electric market.35 Many industrial wood burners are already permitted to burn tires, treated wood waste, black liquor solids and/or paper sludges.

Fact Sheet: Tier II - Waste Incineration

http://www.energyjustice.net/biomass/#incin
http://www.no-burn.org/resources/library/MSWI.pdf

Waste incineration is the worst category of biomass. Providing increased waste disposal capacity worsens the waste problem by lowering the costs associated with waste generation. It also destroys resources (some of which are best recycled or composted), and turns them into toxic ash and toxic air emissions. The wastes which cannot be reused, recycled or composted cleanly ought to be landfilled rather than incinerated.

What makes waste dangerous is not its volume, but its toxicity. People don't usually die from waste physically falling on them, but exposure to the toxic constituents of wastes can cause all sorts of health and environmental problems. When wastes are incinerated, their toxic constituents are liberated into breathable air emissions. Toxic hazards associated with the wastes increase as heavy metals are released and halogenated chemicals (chlorine, fluorine, bromine…) are converted to highly toxic organic forms like dioxins and furans. Waste incineration is the largest known source of dioxin (the most toxic chemical ever studied). The ash that is left then has a higher surface area and is more dangerous in a landfill, where the toxic constituents can leach out more readily than if left unburned. In recent years, incinerator ash has been promoted for such applications as ingredients in cement, fill for reclaiming mines, fertilizer, industrial tile and road base. These are even more dangerous options than landfilling, as they bring the contamination closer to where they might harm people.

Municipal Solid Waste (Garbage)

Incineration is promoted by incinerator companies as a clean alternative to landfills. But incineration is by no means as clean as its advocates claim. Incinerators do not make waste disappear; they simply reduce it to ash and to atmospheric emissions, both of which are potentially hazardous.

Toxic air emissions:

Dioxin and Furans are among the most toxic man-made compounds. Furans are a family of chemicals that closely resemble dioxin, and can cause health damage similar to dioxin. Dioxin is an extremely potent toxic substance that produces a remarkable variety of adverse effects in humans and animals at extremely low doses. Dioxin is persistent in the environment and accumulates in magnified concentrations as it moves up the food chain, concentrating in fat, notable in breast milk. Dioxin can cause cancer and acts as an endocrine disruptor with adverse effects on reproduction, development and the immune system. In the U.S., incinerators are responsible for 84 percent of all airborne dioxin emissions.

Heavy Metals are present in many waste streams and cannot be destroyed by incineration. They end up in ash or are released as air emissions. Typical heavy metals emitted by incinerators include mercury, which causes birth defects, immune system damage and nervous disorders; lead, which is known to cause nervous disorders; and cadmium, which causes kidney failure, hypertension and genetic damage. Other heavy metals

include cyanide, arsenic, selenium, and nickel. Even at low concentrations, heavy metals pose a health hazard because of the high toxicity of certain metals like mercury, lead and cadmium.

Products of Incomplete Combustion (PICs) are chemicals that are not found in the original waste stream but are formed during combustion. They include many harmful chemicals such as benzene, chloroform and carbon tetrachloride.

The Problem with Ash

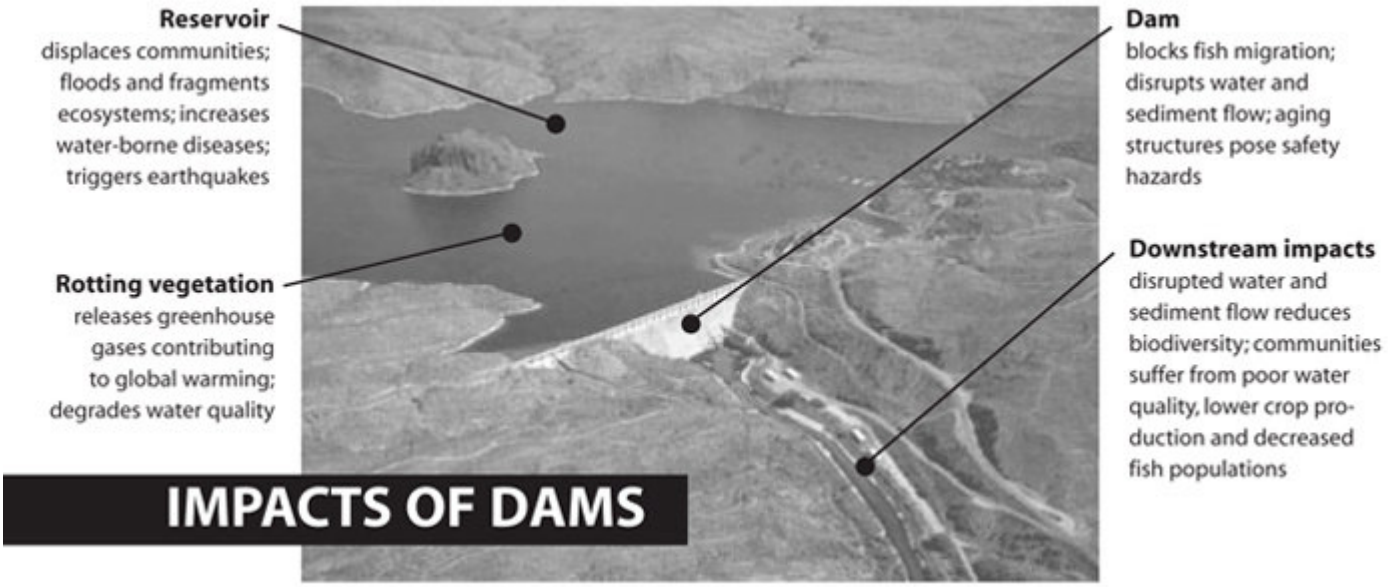
The ash produced from incinerators can be toxic. About 90 percent of it, the so-called bottom ash, remains in the furnace and is collected from grates. The remaining 10 percent, known as fly ash, is drawn up in the flue gases and is collected in air pollution control equipment. Not only are most of the toxic metals captured in the fly ash, but a number of toxic compounds, including dioxin and furans, are actually created on the fly ash particles in a process called post-combustion formation. Ironically, this means that the better the air pollution control, the more toxic the ash. And since metals are not destroyed during combustion, toxic metals in means toxic metals out. Moreover, disposal of toxic ash can be problematic and expensive. If this ash is disposed of in a landfill, the toxics in the ash will leach out and contaminate groundwater.

Fact Sheet: Tier II - Large-scale Hydropower

http://www.energyjustice.net/hydro/
http://www.wrm.org.uy/bulletin/42/viewpoint.html
http://www.monitor.net/monitor/0009a/dampollute.html
http://www.irn.org/programs/latamerica/
http://www.irn.org/basics/impacts.html

A short list of the detrimental effects of dams:

- Blocks the travel of wildlife.
- Destroys forests, agricultural land, recreation areas.
- Alters stream flow causing disruptions in plant and animal ecology.
- Sediment is retained behind the dam, so water scours the stream bed below the dam.



Hydroelectric reservoirs cover an area of the world the size of France. Because of the rotting vegetation they contain, many hydroelectric power schemes release more greenhouse gases into the atmosphere than large coal-fired power stations. Specifically, they release carbon dioxide and methane. Stagnant water produces the worst emissions because the decaying vegetation generates methane, which is 20 times as potent a greenhouse gas as CO2, which is produced when there is oxygen in the water (oxygen is created when the flow is strong). So a reservoir, with slower or stagnant water, will produce more methane than the river did before the dam was built.

Organic matter washed into a reservoir from upstream generates much of the greenhouse gas. The decay of forests submerged when the reservoirs fill up creates only a fraction of the gas. This means that the emissions don't disappear when the flooded forest has rotted away, as many proponents contend, but may continue for the lifetime of the reservoir.

Logging and Human Rights

These reservoirs have inundated millions of hectares of forests –particularly in the tropics-- many of which were not even logged and trees were left to slowly rot. They have also resulted in deforestation elsewhere, as

farmers displaced by the dams have had to clear forests in other areas in order to grow their crops and build their homes. Additionally, dams imply road building, thus allowing access to previously remote areas by loggers and "developers", resulting in further deforestation processes.

Generally, most users of hydro-electricity live far away from the impacted areas and that the sites selected for dam building have been often those inhabited by indigenous peoples, ethnic minorities and poor communities having little capacity of being heard by the wider national community.

Reducing the flow of water from a river changes the landscape it flows through, which in turn can affect the ecosystem's flora and fauna. A dam holds back sediments, especially the heavy gravel and cobbles. The river, deprived of its sediment load, seeks to recapture it by eroding the downstream channel and banks, undermining bridges and other riverbank structures. Riverbeds are typically eroded by several meters within a decade of first closing a dam; the damage can extend for tens or even hundreds of kilometers below a dam.

Case Studies: America, Africa, Latin America

Within nine years of the completion Hoover Dam in the US, which flooded 247 square miles, the riverbed below the dam had lowered by more than 4 meters. Riverbed deepening will also lower the groundwater table along a river, threatening vegetation and local wells in the floodplain and requiring crop irrigation in places where there was previously no need. The depletion of riverbed gravels reduces habitat for many fish that spawn in the gravelly river bottom, and for invertebrates such as insects, mollusks and crustaceans. Changes in the physical habitat and hydrology of rivers are implicated in 93% of freshwater fauna declines in North America.

Before the Aswan High Dam, the Nile River carried about 124 million tons of sediment to the sea each year, depositing nearly 10 million tons on the floodplain and delta. Today, 98% of that sediment remains behind the dam. The result has been a drop in soil productivity and depth, among other serious changes to Egypt's floodplain agriculture. The Aswan Dam has also led to serious coastal erosion, another problem stemming from the loss of sediments in a dammed river.

In Latin America, the Yacyretá Dam eventually went $10 billion in debt, the Itaipu $20 billion. At least 40 percent of Brazil's massive foreign debt was run up for investments by the electric sector. Millions of people were forcibly removed from their homes as their lands were flooded. Deprived of their livelihoods, their food supplies depleted, their water polluted, these mostly rural people were pushed further into poverty by these so–called "engines of development." Shocking images form a grim scrapbook of the region's dam–building hey–day: monkeys howling in the rising waters, millions of hectares of rainforests and other critical ecosystems drowning in stagnant black water, indigenous families being led away from age–old communities to shabby relocation camps, fish floating belly up, and hired gunmen to keep project opponents from taking to the streets in protest.

Dissent was brutally crushed in a number of hushed–up incidents. In Guatemala, Chixoy Dam opponents were murdered. In Paraguay, the police bludgeoned squatters who built makeshift huts on the shore of Yacyretá reservoir. In Colombia, the oppression against dam opponents continues, with the brutal assassination of indigenous leaders.

Fact Sheet: Tier I - Low-impact Hydropower

http://www.lowimpacthydro.org
http://www.epa.gov/greenpower/whatis/renewableenergy.htm

Low-impact (small) hydropower is created when the flow of water spins a turbine in a setting that has reduced environmental impacts. Eligible facilities meet criteria such as minimum impact on river flows, water quality, fish passage, and watershed protection. In the absence of information on these environmental criteria, a minimum generating capacity (30MW) determines eligibility. Eligible hydropower facilities often operate in a "run of the river" mode, in which little or no water is stored behind a dam.

Restrictions

The facility (dam and powerhouse) should provide river flows that are healthy for fish, wildlife, and water quality, including seasonal flow fluctuations where appropriate.

The water quality criterion has two parts. First, a facility must demonstrate that it is in compliance with state water quality standards. Second, a facility must demonstrate that it has not contributed to a state finding that the river has impaired water quality under Clean Water Act.

The facility provides effective fish passage for riverine, anadromous and catadromous fish, and also protects fish from entrainment.

The facility must be in compliance with resource agency recommendations regarding watershed protection, mitigation or enhancement. These may cover issues such as shoreline buffer zones, wildlife habitat protection, wetlands protection, erosion control, etc.

Cultural resources must be protected either through development of a plan approved by the relevant state, federal, or tribal agency.

The facility provides free access to the water and accommodates recreational activities on the public's river.

Fact Sheet: Tier I - Wind Power

http://www.energyjustice.net/solutions/
http://www.awea.org/pubs/factsheets/Cost2001.PDF
http://www.abcbirds.org/policy/windpolicy.htm

Wind power, according to the U.S. Department of Energy, can provide more power than the entire nation's electricity needs. The plains states (northern Texas up to the Dakotas) have been called the Saudi Arabia of wind. In 2001 (before natural gas got really expensive), wind was already cost-competitive with natural gas power plants in some parts of the country.

If environmental costs were included in the calculation of the costs of electricity generation, wind energy's competitiveness would increase further because of its low environmental impacts. Wind energy produces no emissions, so there is no damage to the environment or public health from emissions and wastes such as are associated with the production of electricity from conventional power plants. Wind energy is also free of the environmental costs resulting from mining or drilling, processing, and shipping a fuel.

In the past 20 years, wind technology has come a long way. The cost has dropped dramatically and continues to drop as conventional power sources become more expensive. Modern wind turbines can produce more and more power (currently, the large ones can produce 1.5 megawatts each and 2-3 megawatt types are currently under testing and development).

North and South Dakota alone have enough wind energy from its highest wind speed sites to supply over half of the electricity needs of the lower 48 states. A group of 12 states in the midsection of the country have enough wind energy potential to produce nearly four times the amount of electricity consumed by the nation in 1990.

According to the American Wind Energy Association:

"Installed wind energy generating capacity now totals 6,374 MW, and is expected to generate about 16.7 billion kWh of electricity in 2004. That is still less 1% of U.S. electricity generation. By contrast, the total amount of electricity that could potentially be generated from wind in the United States has been estimated at 10,777 billion kWh annually—more than twice the electricity generated in the U.S. today."

- Wind Energy: An Untapped Resource

Fuel Levelized costs (cents/kWh) (1996)	
Coal	4.8-5.5
Gas	3.9-4.4
Hydro	5.1-11.3
Biomass	5.8-11.6
Nuclear	11.1-14.5
Wind (without PTC)	4.0-6.0
Wind (with PTC)	3.3-5.3

The cost of wind energy is dropping faster than the cost of conventional generation. While the cost of a new gas plant has fallen by about one-third over the past decade, the cost of wind has dropped by 15% with each doubling of installed capacity worldwide, and capacity has doubled three times during the 1990s. Wind power today costs only about one-fifth as much as in the mid-1980s, and its cost is expected to decline by another 35-40% by 2006.

Turbines and Birds and Bats

Wind energy production may affect birds through:

1. Mortality from collisions with the turbine blades, towers, power lines, or with other related structures, and electrocution on power lines;
2. Avoidance of the wind turbines and habitat surrounding them; and
3. Direct habitat impacts from the turbines' footprint, roads, power lines, and auxiliary buildings

Recent U.S. studies indicate that bird mortality at wind turbine projects varies from less than one bird/turbine/year to as high as 7.5 birds/per turbine/year. The latter fatality rate was at Buffalo Mountain, TN. *A meteorological (met) tower constructed for the Buffalo Mountain wind plant had a mortality rate of 8.1 birds/year*. The average for bats is similar to that of birds, although the range is much larger (from 0.7 bats per turbine per year to 47.53)

Typical rates for bird deaths are between 1-2 bird fatalities/turbine/year. For example, the Stateline Wind project on the Oregon/Washington border is one of the world's largest at 300 Megawatts. The first phase of 399 large operating turbines was assessed at 1.70 bird fatalities/turbine/year, 43% of them Horned Larks, a common year-long resident grassland songbird. Fatality rates at the Foote Creek Rim Wind Project in Wyoming, with 105 large turbines built at 7,600' to 8,000' elevation, was estimated to be 1.75 bird fatalities/turbine/year. At these large sites, the average rate of bird fatality is significantly lower than the average for communications towers in the United States.

Fact Sheet: Tier I - Solar Power (Photovoltaics)

http://www.energyjustice.net/solutions/
http://archive.greenpeace.org/climate/renewables/reports/kpmg8.pdf
http://www.eere.energy.gov/solar/myths.html

House with photovoltaic shingles

Solar power, if it were only affordable, has the power to fill the entire country's energy needs - using existing rooftops and other already paved surfaces. The main thing keeping solar from revolutionizing our energy system is its cost. A KPMG report, commissioned by Greenpeace in 1999, shows that for about $660 million (the cost of only 2 of the 1300-1900 new power plants proposed under the Bush/Cheney Energy "Plan"), a large-scale solar panel factory can be built which would bring the cost of solar power down by 4-5 times so that solar is competitive with existing conventional energy sources.

Mass production of solar PV can make solar cost-competitive with (or even cheaper than) dirty energy technologies. As nanosolar applications and other new technologies roll out within the next 5-10 years, this cost reduction is inevitable. Once solar is cost-competitive, there's no limit on the amount of energy that can come from distributed solar generation (and there are many jobs to be created from installing it all).

The Department of Energy estimates that a distributed solar system would involve an average of 17 square miles of PV per state. Using vacant land, parking lots and rooftops would provide plenty of land for this. They state that using the estimated 5 million acres of abandoned industrial "brownfields" sites in our nation's cities could supply 90% of America's current electric demand.

Pollution Prevention

Compared to fossil-generated electricity, each kilowatt of PV electricity annually offsets up to:

- 16 kilograms of nitrogen oxides
- 9 kilograms of sulfur oxides
- 2,300 kilograms of carbon dioxide (CO_2)

The Chicken and the Egg

The predominant reason that solar is not readily adopted is that the demand for solar energy and solar panels is small and the associated prices are high. It comes down to a classic chicken/egg problem: as long as demand is small, production of solar energy will remain small-scale and expensive, and as long as the production is small-scale and expensive, the price will remain high and the demand small: catch 22. Using our Alternative Energy Portfolio Standard, we can halt this catch 22!

The Ball is Already Rolling... reports Industry and the US Department of Energy

Solar electricity will eventually become a major player in the world's energy portfolio. The industry just doesn't have the capacity to meet all demands right now. But assuming that the proper investments are made now and are sustained, the industry will become significant in the next few decades. In 2000, for example, worldwide PV shipments grew by 37% from the previous year. In 2001, they grew by another 38%.

The cost of producing PV modules, in constant dollars, has fallen from as much as $50 per peak watt in 1980 to as little as $3 per peak watt today. This causes PV electricity costs to drop 15¢-25¢ per kilowatt hour (kWh), which is competitive in many applications.

In the California market, where state incentives and net metering are in place, PV electricity prices are dipping below 11¢/kWh, on par with some utility-delivered power. Moreover, according to the U.S. PV Industry Roadmap, solar electricity will continue this trend and become competitive by 2010 for most domestic markets.

Action Ideas

ON CAMPUS

Get your school to demand green power from its utility!

Use *page 2* of this Action Packet to find out which electric distribution company (EDC) serves your area. Approach your school administrators and student body and inform them about the opportunity we have with the Alternative Energy Portfolio Standard.

- Get your school to send a letter to their electric company requesting in a stern but cordial way that the utility fulfill their alternative energy requirements with **only the clean alternatives** (wind for Tier I and non-combustion energy efficiency for Tier II.) You can add some muscle to this request if your school has stocks in the utility and is willing to threaten to divest if the utility does not purchase the clean alternatives (see below for more information).
- Have your student body government send a similar letter of support.
- Even ask individual students to write or send postcards to the utility as concerned customers!

Sample Letter Below!!

For your school, this is a win-win situation: they receive positive PR for supporting environmental and socially responsible causes and they don't have to pay a thing! Although writing a letter is no alternative to actually buying green energy (see how this can be done next), this can help your school look better than others.

Get your school to buy (more) Green Power!

By now, 21 colleges and universities in Pennsylvania have collectively purchased over 31 megawatts of wind energy! The percentage each school purchases ranges from 1 – 10%, but every little bit makes a difference. If your school already buys green energy (who can see which schools have by visiting http://www.paconsortium.state.pa.us/reports.htm), encourage your school to buy more! If your school doesn't buy green energy, start the Climate Campaign on your campus today!

STEP 1: Check out the Resources Offered by the Climate Campaign

Explore the campaign website: www.climatecampaign.org
The website has issue background, links, campaign resources and connections to other activists in your area. Download the action packet at http://www.climatecampaign.org/docs/cc_action_packet.doc This is the core resource for the campaign and should help with many different stages of your campaign.

Join The PA Listserv
To join, send blank email to: climatecampaign-pa-subscribe@lists.riseup.net - Stay informed on the latest developments in the campaign, share advice and resources with fellow campaigners and get plugged into the network.

STEP 2: Get Your University to Adopt Climate Responsible Policies

Do Research
Talk to your facilities manager, faculty and old student leaders about what has been done and what has been tried before. Each campus is different, so understanding the specific context you are working in is essential.

Build Your Group
Find a core group of students to work with you on the campaign - you can't do it alone. Hold a campaign kick-off meeting and invite as many people as you can. Make decisions as a group so everyone feels ownership over the campaign.

Find Interested Faculty, Staff and Administrators
Often, your best ally will be a facilities manager, a professor or a top administrator. Find these people and don't just assume they don't want the same things you do!

Get your school to divest (pull out stocks) or threaten to divest from polluting utilities!

American colleges and universities have endowments worth billions of dollars. Much of this is invested by schools with little regard to the ideology of the company they are investing in. The idea of socially responsible investment (SRI) has gained steady momentum over the past century and the role of colleges and universities in this grows greater the larger their endowments grow. Many successes, in schools such as Columbia University, Duke, Portland State University have shown that these institutions are willing to divest from companies with poor environmental and/or human rights records. If your school is invested in any of the companies on the list on *page number 2* of this Action Packet, your school has bargaining power and also a direct avenue for punishing bad companies. For your school, this is an easy way of creating good PR as well as ensuring them an investment in companies that are forward-looking!

The SRI Endowment program has everything set up to help you make the case to your school. You will learn how to find out what your school invests in, where to find the relevant research, how to build a solid argument, and how to write an official proposal to your school in order to establish an SRI team. Check out their website:

http://www.sriendowment.org/

Also be sure to visit the extensive list of divestment links organized by *Global Exchange*:

http://www.globalexchange.org/countries/palestine/divestmentlinks.html

IN YOUR COMMUNITY

Get local citizens and business owners to write their electric companies or buy green energy!

Already over 245,000 Pennsylvanians buy alternative energy through their electric companies (PECO or Community Energy sell 100% wind energy). In many cases, people are paying just a bit more each month for this. To find out if buying green energy is an option, and how to buy, people can visit the website of the Office of Consumer Advocate, http://www.oca.state.pa.us/elecomp/pricecharts.html. People should pay attention to the mix of energy sources going into their supposed "green" energy – Green Mountain Energy, for instance, sells primarily landfill gas and hydropower, **not wind**! (See this chart to view each company's mix: http://www.cleanyourair.org

People who aren't willing to pay extra for their electricity, and people who want to do as much as they can for the environment, can include a letter or sticker when they return their bill asking their electric company to fulfill their Tier I requirement with wind and their Tier II requirement with energy efficiency. If they won't write a letter, ask them to put a campaign sticker on their electric bill when they send it back or sign their name on a postcard.

To reach people, you can go to their churches, synagogues and mosques, canvass at their doors, or attend their neighborhood meetings. Sometimes, it's as simple as informing people that they have the opportunity to buy green power or can make a meaningful effect by sending a letter to their utility. Sometimes, this requires getting more active in the community and gaining their respect. Helping out with local initiatives, such as seasonal decorating, house tours, community gardens, or park cleanups is a fun way to volunteer and bring the community to your side. Attending neighborhood meetings is often the best way to begin, although your school may already have connections or programs with the local community.

Businesspeople can also be sympathetic to our cause. If the business has ties with the school, either by receiving purchase orders, frequent customers, or selling bulk products, the businesspeople can be even more receptive to your requests. If your initiative can be billed as a "community program" or as "socially and environmentally responsible," businesspeople will be drawn to it. One local coffee shop in Easton, Pennsylvania that purchases alternative energy has a sign on the counter reading "We brew our coffee with brown beans and green energy!" Always stress that writing a letter to the electric company is a way of helping bring clean energy to Pennsylvania without costing the ratepayer anything...unless they want to buy green energy.

Get a local church or other religious organization to back your organization's position!

Oftentimes it would be problematic to approach a religious organization for support about a partisan environmental issue, because not all members will agree with the position. In this case, the argument is not partisan: we already passed a law affirming our need for clean renewable energy in Pennsylvania, so let's do everything we can to make sure we get the cleanest renewables out there (wind and energy efficiency)!

A local minister or rabbi might be sympathetic enough to include something in his or her sermon or community organizing activities about the AEPS, or he or she may allow you to make a presentation, organize a workshop, or distribute literature. You can encourage the organization as a whole or individual members to write letters, send postcards, or include stickers when they pay their electric bill. Especially good, you can provide them information on how to buy wind energy for their own home!

Fight off polluting industries in your area

At any given time in Pennsylvania, there are countless proposals for new waste coal or coal power plants, incinerators, landfills, and ethanol plants. Preventing these industries from invading your area, or at least making their operations more expensive means that *dirty energy sources become less economical* and give clean energy sources an opportunity to step in. Even if nothing is being proposed for your area, there are probably enough existing industries to keep you busy for a long time! The primary ways these sorts of industries are stopped are:

1. Convincing local officials to oppose projects
2. Getting pro-environment elected officials hired at the local level (easier than you may think!)
3. Getting the Pennsylvania Department of Environmental Protection to decline a permit

This is one of the best ways you can volunteer in your local area. You will learn a ton about local politics, industry corruption and propaganda, gain organizing skills, and meet incredible people along the way.

To find out what can be done in your area, contact Mike Ewall, the director of ActionPA at: catalyst@actionpa.org

Get the media to cover your group's events or write articles about the AEPS

In many areas, especially in rural regions, the local media is an untapped resource. In many cases, reporters are willing to cover events you think are small or insignificant and are more than willing to hear what their local student population is up to. Keep a running contact sheet of the local newspapers, radio stations, and TV stations so you can contact them easily. Sometimes, you will merely need to call the local office and speak to a reporter, but in some cases you will need to write an official Press Advisory and send it to them. You can find an example of a Press Advisory later on in this Action Packet.

Although the Alternative Energy Portfolio Standard was voted into law in November 2004, it will slowly be coming into effect through 2010 and then continue to gain momentum as the green energy requirements grow. This is guaranteed to be a topic that will be discussed and re-discussed for years. Making contact with a local reporter and providing him or her with good information can culminate in a pro-environmental article and turn out to be a strong beginning for local environmental politics regarding the AEPS.

Want to prevent yourself from being misquoted?

- Quote yourself in your press releases
- Prepare printed materials (quotes, facts, mission statements, related information, contact information) prior to an event and provide them to the press
- Reporters will generally try and interview the highest-ranking individual (usually a club president, or perhaps the organizer) at the event. This person should be prepared to answer a few questions.
- Don't be afraid to postpone an interview if your busy or feel scattered. You might be able to arrange a phone interview after the fact.

Glossary

Ratepayer: A customer of an energy company
Low-impact (hydropower): Using passive or nonobstructive measures to generate hydropower
Alternative energy: A general term describing non-mainstream energy sources
Green energy: A general term describing non-mainstream energy sources; usually includes biomass incineration, landfill gas burning, or other deceptively dirty combustion technologies.
Renewable: An energy source that does not have a finite supply; used sometimes to describe waste coal
Clean renewable: An energy source that is renewable and does not pollute
Electric distribution company (EDC): A.K.A. electric company. A large company that markets energy to its customers, such as PECO, Met-Ed, Penn Power
Electricity supplier: A local firm that physically produces power
Press advisory: A notice sent to the press alerting them of an event and giving them enough information to decide if the case is worthy and to send the correct reporter
AEPS: Alternative Energy Portfolio Standard. The name of Act 213 in Pennsylvania. The law passed in November 2004 that mandates a certain percentage of "alternative" power over a certain time horizon.
RPS: Renewable Portfolio Standard. The general term describing laws such as the Alternative Energy Portfolio Standard. The AEPS, however, is not a true RPS because it includes non-renewables.
Tier I & II: The two categories of energy on Pennsylvania's AEPS. Tier I is mostly clean energy while Tier II contains fossil fools and other dirty alternatives.
Divestiture: To pull out stocks from a company that has bad environmental policies/impacts or human rights history.

Sample Letter to a Local Electric Company

PECO Energy Company
Customer Service Center
2301 Market Street
P.O. Box 8699
Philadelphia, PA 19101

March 21, 2005

Dear Customer Service Representative,

As you may know, Act 213, the Alternative Energy Portfolio Standard, was signed into law by Governor Rendell in November of 2004. This is an exciting opportunity for PECO and the state of Pennsylvania to support and invest in clean energy technologies. Although I know that PECO does not come into compliance with Act 213 until December 31, 2010, I am sure you are all preparing and planning for how you will fulfill your alternative energy requirements.

I have reviewed Act 213 and I realize that PECO has many options for how to fulfill its quota for Tier I and Tier II energy. But in my books, there are only two truly clean renewable energy sources among those options: wind energy in Tier I and energy efficiency in Tier II.

In Tier I, technologies such as landfill gas, crop incineration, and animal product processors require combustion and therefore pollute and encourage polluting markets. Only wind and solar power in Tier I are an indisputably clean technologies. Tier II includes the burning of mercury-laden waste coal and biomass incineration, leaving energy efficiency as the cleanest option.

As a loyal customer of PECO and a person who cares about my environment, I encourage you to only choose the cleanest technologies to fulfill your Act 213 requirements: wind and energy efficiency. Help us make Pennsylvania become a leader in renewable energy technology!

Sincerely yours,

Sample Press Advisory

Reach Out Counseling (LOGO HERE)
1628 W. 145th, Suite 403
Lawrence, KS 66048

FOR IMMEDIATE RELEASE

February 11, 1997 (DATE YOU WANT THIS REPORTED ON)

For further information contact:
Judy Smith, Assistant Director
555-1313 office, home 903-9898

Reach Out Counseling Opens Peer Helping Center At Area High School

(E)LAWRENCE, KS -- On Friday, February 14, Reach Out Counseling will open a peer helping center at Lawrence High School, giving teenagers a chance to talk with other young people about their problems. The peer counselors, Lawrence High School students trained to respond to common concerns of teenagers, will offer one -on-one counseling, assist in decision making, and provide professional referrals to young people in need of help.

The peer helping center, which will be located in the northwest corner of the library and open on school days from 3:30 p.m. until 7:30 p.m., was the concept of Reach Out Director Martha Evans.

"Teenagers face tremendous pressure these days to grow up faster and faster," Evans said. "Their friends, boyfriends, girlfriends, or parents expect them to get good grades, to experiment drugs and alcohol, and to become sexually active. Having someone available to listen to them who understands is a valuable service we can give young people."

The peer helping program was identified as a needed service at the high school in a survey distributed by Evans. All of the students filling out the survey indicated they felt pressure, ranging from mild to extreme, to achieve in school, to date, and to try alcohol and other drugs, Evans said. Nearly seventy percent of those students said they'd prefer to talk to someone close to or their same age rather than a parent, teacher, school counselor, or church leader.

"Students can come in to talk about their boyfriends, girlfriends, or whatever," said Rebecca Rigler, Lawrence High School junior and peer counselor. "We're here to listen and to talk about what their feelings are, whatever's important to them."

# # #

(text: double-spaced, wide margins, one-sided)

How to Write Letters to the Editor

by Richard Rider

Short, concise letters are always more likely to be published than long, meandering ones; try to keep them under 150 words. The longer letters are also more likely to be edited. It's better that you do your own editing. Ever notice how you read letters to the editor in the paper? Most people read the shorter letters first and then perhaps later read the longer ones. Thus your shorter letter has a better chance of being read.

Be timely; try to respond within two or three days of the article's publication. Pick an issue of particular importance to you - don't be afraid to let some passion show through.

Here are some stylistic considerations:

1. State the argument you're rebutting or responding to, as briefly as possible, in the letter's introduction. Don't do a lengthy rehash; it's a waste of valuable space and boring to boot.
2. Stick to a single subject. Deal with one issue per letter.
3. Don't be shrill or abusive. Editors tend to discard letters containing personal attacks. Even though you're dying to call Jesse Jackson a preachy parasite, stifle the urge.
4. Your letter should be logically organized. First a brief recitation of the argument you are opposing, followed by a statement of your own position. Then present your evidence. Close with a short restatement of your position or a pithy comment
5. Use facts, figures and expert testimony whenever possible. This raises your letters above the "sez you, sez me" category. Readers respect the opinions of people with special knowledge or expertise. Use expert testimony to bolster your case.
6. Proofread your letter carefully for errors in spelling, punctuation and grammar. Newspapers will usually edit to correct these mistakes, but your piece is more likely to be published if it is "clean" to begin with. Read your letter to a friend, for objective input.

   One suggestion is that a letter shouldn't be mailed the same day it is written. Write, proofread and edit the piece. Then put it aside until the next day. Rereading your letter in a fresh light often helps you to spot errors in reasoning, stilted language and the like. On the other hand, don't let the letter sit too long and lose it's timeliness.
7. Try to view the letter from the reader's perspective. Will the arguments make sense to someone without a special background on this issue. Did you use technical terms not familiar to the average reader?
8. Should your letter be typed? In this day and age, generally yes. Double or triple space the letter if it is short. For faxing purposes, we appreciate it if the letter is all on one page, so single spacing might be the only option available.
9. Direct your missives to "Letters to the Editor," or some similar sounding title.
10. Always include your name, address, day-time phone number and signature. The papers will not publish this information, but they may use it to verify that you wrote the letter. If we are fax broadcasting your letter, do not put a date on it. We may have to wait a day or two before broadcasting it out, depending on how many letters are waiting for dissemination.

Don't be discouraged if your letter isn't published. The editor may have received more responses on that issue than he feels he can handle.

WEB RESOURCES

College & University

The Pennsylvania Consortium for Interdisciplinary Environmental Policy
http://www.paconsortium.state.pa.us/
The Socially Responsible Investment Endowment Project
http://www.sriendowment.org/
Campus Sustainability Assessment Project
http://csap.envs.wmich.edu/

Youth Networks

The Climate Campaign (Northeast Region)
http://www.climatecampaign.org
Energy Action (National Movement)
http://www.energyaction.org
The Student Environmental Action Network (SEAC)
http://www.seac.org

Information Sources

ActionPA and the Energy Justice Network (Info on Act 213 and each technology and solution)
http://www.actionpa.org/cleanenergy/
Community Tool Box - Activism Materials and Resources (media, strategizing, organization, lobbying)
http://ctb.ku.edu/
Environmental Justice Net Web Resources
http://www.ejnet.org

Pennsylvania Government

Department of Environmental Protection (Energy)
http://www.dep.state.pa.us/
Public Utility Commission
http://www.puc.state.pa.us/
http://www.puc.state.pa.us/utilitychoice/
Department of Consumer Advocate (How to buy green energy)
http://www.oca.state.pa.us/elecomp/pricecharts.html