BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

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In the matter of the Application of	
PacifiCorp and ScottishPower plc	
for an Order Approving the Issuance	
of PacifiCorp Common Stock	

Docket No. 98-2035-04

DIRECT TESTIMONY OF JOHN NIELSEN

ON BEHALF OF

THE LAND AND WATER FUND OF THE ROCKIES THE SOUTHERN UTAH WILDERNESS ALLIANCE THE WASATCH CLEAN AIR COALITION THE GRAND CANYON TRUST

June 18, 1999

1	I.	INTRODUCTION
2		
3	Q.	Please state your name and address.
4	A.	My name is John Nielsen. I work at 2260 Baseline Road, Suite 200, Boulder, Colorado,
5		80302.
6		
7	Q.	By whom are you employed and in what capacity?
8	A.	I am employed by the Land and Water Fund of the Rockies (LAW Fund) as a Senior Policy
9		Advisor.
10		
11	Q.	Please describe the LAW Fund.
12	A.	The LAW Fund is a regional law and policy center founded in 1990 to provide legal and
13		policy assistance to community groups throughout the Rocky Mountain and Desert
14		Southwest region. The LAW Fund's Energy Project was established in 1991 to advocate for
15		environmentally responsible energy policy and practices in a variety of state and regional
16		forums. Today the Energy Project operates in six western states: Arizona, Colorado,
17		Nevada, New Mexico, Utah and Wyoming.
18		
19	Q.	Is the LAW Fund active in Utah?
20	A.	Yes, the LAW Fund has an office in Utah, Utah members, a Utah steering committee, and a
21		Board member who lives in Utah. The LAW Fund has been involved in proceedings before
22		the Utah Public Service Commission for over five years, primarily on energy efficiency,
23		financial incentive, and integrated resource planning issues.
24		
25	Q.	Do other environmental groups active in Utah support your testimony?
26	A.	Yes. The Grand Canyon Trust, the Southern Utah Wilderness Alliance and the Wasatch
27		Clean Air Coalition support the testimony. Together these groups have over 9,000 members
28		in Utah, many of whom are PacifiCorp customers. A brief description of each group is
29		attached as exhibit JN-1.
30		
31	Q.	Please describe your educational and professional experience.

32 A. I have a Bachelor of Arts degree in economics and mathematics from the University of

1 Colorado and a Master of Philosophy degree in economics from Yale University, where my 2 major fields of study were Industrial Organization and Public Economics. I joined the LAW 3 Fund after completing my graduate training and have been employed there for the past four 4 years as an economist and policy advisor. My responsibilities at the LAW Fund involve 5 reviewing and developing policies and practices to reduce the adverse environmental impacts 6 of electricity generation. My work at the LAW Fund has focused on renewable energy, 7 energy conservation and regional air quality.

8

9 I have testified as an expert witness before the Colorado Public Utilities Commission in 10 proceedings related to integrated resource planning, green pricing, and net metering. In Utah, 11 I have participated in the RAMPP public advisory process and the DSM collaborative, and I 12 am currently participating in the Utah Public Service Commission's Renewable Energy and 13 Energy Efficiency Task. For the past year and half, as part of the Western Regional Air 14 Partnership, I have been working with stakeholders from across the region _____ including 15 representatives of the Utah Division of Air Quality, the Utah Office of Energy and Resource Planning, and PacifiCorp _____ to develop a plan for addressing regional haze in the West. 16 17 18

What is the purpose of your testimony? Q.

19 A. I will review the impacts of the merger on PacifiCorp's environmental performance.

20

21 Q. Why are environmental issues relevant to a merger case?

22 A. The issue for the Commission's decision in this proceeding is whether the proposed merger 23 is in the public interest.¹ The impacts of the merger on the Utah's land, air and water quality 24 are an important component of the public interest. Moreover, because complying with 25 environmental regulations is an increasingly large component of utility expenses, sound environmental stewardship has economic implications as well. Thus, for both environmental 26 27 and economic reasons the merger's effects on the company's environmental performance has 28 a bearing on the public interest.

¹Utah Code Section 54-4-28. Merger, consolidation, or combination. No public utility shall combine, merge nor consolidate with another public utility engaged in the same general line of business in this state, without the consent and approval of the Public Utilities Commission, which shall be granted only after investigation and hearing and finding that such proposed merger, consolidation or combination is in the public interest.

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2 Q. What topics do you review in your testimony?

3 A. My testimony addresses the impacts that the merger is likely to have on the following areas
4 relating to the environment: renewable resources, environmental process, energy efficiency
5 and several other issues including distributed generation, regional haze and climate change.

6

7 Q. Please summarize your conclusions.

8 A. I believe that in the areas of renewable energy and environmental process the merger will
9 improve PacifiCorp's environmental performance. In the areas of energy efficiency,
10 distributed generation, regional haze and climate change, environmental performance will at
11 least be maintained and may improve. Taken as a whole, I think the merger will improve
12 PacifiCorp's environmental performance and, with respect to the environment, is in the
13 public interest.

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- 16 II. RENEWABLE RESOURCES
- 17

18 Q. Why should the Commission care about renewable resources and the impacts the merger may19 have on their development?

20 A. Compared to fossil-fuel generation, renewable resources have much lower environmental 21 impacts. In Utah, for example, fossil fuel-fired electric power plants are responsible for 22 roughly 30% of SO₂ emissions and 40% of NO_x emissions, pollutants that contribute to 23 visibility degradation and public health problems. Similarly, fossil fuel-fired power plants 24 are responsible for over half the state's CO_2 emissions, the principal pollutant associated with 25 the risk of global climate change. Renewable resources can help reduce emissions of these 26 pollutants at a reasonable cost, particularly in light of prior, and expected future, price 27 declines.

Renewable resources also help reduce risk. Renewables have no fuel costs and thus
 reduce the economic risks associated with rising fossil fuel prices. In addition, because they
 reduce environmental impacts, they also protect against the risk of higher electric rates
 resulting from more stringent future environmental regulations. Finally, because of their
 modular nature, power suppliers can develop renewable capacity when they need it, thus

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reducing the risks of overbuilding if demand forecasts are inaccurate.

2

3 Q. What is PacifiCorp currently doing with respect to renewable energy?

4 A. With respect to projects serving Utah customers, PacifiCorp's most significant renewable
5 energy activity is its participation in the Wyoming Wind Energy Project. The Wyoming
6 wind energy site is located at Foote Creek Rim, between Laramie and Rawlins. Under
7 current plans the site will be home to 69 wind turbines capable of generating 41 MW of
8 electricity. Of this 41 MW, PacifiCorp will own 80%, or approximately 33 MW. A portion
9 of this 33 MW will be designated to serve Utah customers.

In addition to its wind power activities, PacifiCorp owns the 24-megawatt Blundell
 geothermal plant in Utah and is a participant in the Solar Two Project that has successfully
 demonstrated the feasibility of molten salt storage in conjunction with central receiver solar
 generation. PacifiCorp also has smaller solar photovoltaic energy projects in Oregon,
 Wyoming and Utah.

15

16 Q. What new commitments toward renewable resources will ScottishPower make?

17 A. According to Alan Richardson's direct testimony, within five years of the approval of the

18 merger, ScottishPower would commit PacifiCorp to develop an additional 50 MW of
19 renewable resources (wind, solar, geothermal).

In addition, ScottishPower would commit PacifiCorp to file an application for a
"green resource tariff." This tariff would give those customers who wish to consume more
renewable energy than is in the company's base resource mix the opportunity to purchase
additional amounts of renewable energy, at a small premium. ScottishPower has also
committed PacifiCorp to evaluate the possibility of expanding its Blundell geothermal plant.²

25

26 Q. How do you view ScottishPower's commitment to develop an additional 50 MW of27 renewable resources?

28 A. I think it is a very positive step. While it is true that, even with this commitment, non-hydro
29 renewable resources will still make up only about 1% of PacifiCorp's capacity base,

¹ ²For an outline of ScottishPower's renewable energy commitments see Direct Testimony of Alan V. Richardson,

² Docket No. 98-2035-04, p.14, lines 9-20.

integrating an additional 50 MW of clean renewable energy into the PacifiCorp system will
 allow the company to continue gaining experience with these technologies. Moreover, the
 additional renewable resources will help reduce the environmental impacts of PacifiCorp's
 operations. When one considers that renewable resources remain somewhat more expensive
 than conventional resources, and that additional renewable resources are likely to be
 developed through the proposed green pricing tariff, it seems that the size and the timing of
 the commitment <u>i.e. 50 MW over five years</u> are reasonable.

8

9 Q. Is the commitment to an additional 50 MW of resources economically responsible? 10 A. Yes. PacifiCorp relies heavily on fossil fuel-fired resources. Diversifying its resource mix 11 by investing in additional renewable resources will help reduce the potential risks to 12 PacifiCorp and its customers of rising fuel prices or stricter environmental regulations. In 13 addition, the renewable resources selected for acquisition will be evaluated in the integrated 14 resource planning process. This process will help ensure that the resources ultimately 15 selected provide the most value to PacifiCorp's customers and its electric system. Finally, 16 the five-year phased-in approach for acquiring these resources across the entire system will 17 reduce the total net present value expense for Utah customers and also give the company 18 time to adjust its plans in response to possible changes in the relative costs and benefits of 19 various types of renewable energy resources.

20

Q. You mentioned that if the merger is approved ScottishPower would commit PacifiCorp to
file a "green resource tariff" within 60 days. Could you briefly describe how a green
resource tariff would work?

A green resource tariff would provide customers with the choice of purchasing a clean,
renewable energy product. The idea is that those customers interested in consuming more
renewable energy than is provided in the base resource mix would pay a small premium in
their electric bills to account for the incremental costs of renewable resources above
conventional resources. As customers choose to purchase the renewable energy product, the
company would acquire renewable resources to meet the demand.

30

31 Q. How do you view ScottishPower's commitment to offer a green resource tariff?

32 A Again, I think this is a positive proposal. According to Alan Richardson's testimony the

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1 renewable resources acquired through the green pricing tariff would be in addition to the 50 2 MW commitment described above. Thus the green resource tariff will lead to increased 3 renewable energy development by the company. Based on the LAW Fund's experience with 4 green tariffs in Colorado, the amount of renewable resources developed through such 5 programs can be significant. For example, in Colorado a number of utilities are developing 6 wind energy projects using green tariffs. The wind power sells at a premium of roughly 2.5 7 cents more per kWh. In the two years that the programs have been in operation, over 10,000 8 residential customers, 120 businesses and more than a dozen governmental entities have 9 subscribed to the program, leading to the development of roughly 20 MW of wind capacity. 10 11 12 III. **ENVIRONMENTAL PROCESS** 13 14 One of the areas you identified as being an issue associated with the merger was environmental 15 process. What do mean by that term? 16 By environmental process I mean the process by which PacifiCorp communicates with citizens and 17 organizations interested in promoting increased environmental quality. 18 19 How would you characterize PacifiCorp's past communication with the environmental community? 20 A. For the most part, I think the communication has been good. For example, in the RAMMP 21 process PacifiCorp convenes a public advisory group to gather outside input on resource 22 planning issues. The LAW Fund and other environmental groups have participated in these 23 advisory groups, and PacifiCorp has generally been responsive to the concerns raised by the 24 environmental community. The company used a similar process – referred to as the DSM 25 collaborative – to take input on the design and implementation of its energy efficiency 26 programs. 27 28 What process does ScottishPower propose to communicate with the environmental О. 29 community? ScottishPower commits in its testimonies to develop a process to gather outside input on **30** A.

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1 environmental matters, such as the establishment of an Environmental Forum.³

- ScottishPower uses this type of system in the UK. In the UK, the Environmental Forum
 consists of key ScottishPower decision makers and leading members of the environmental
 community and serves as an advisory body that ensures that the company's approach to
 environmental issues is relevant to a wide stakeholder base.
- 6

7 Q. Would the establishment of an Environmental Forum improve the current situation? 8 A. Yes, I think the establishment of an Environmental Forum would be a valuable addition to 9 the way PacifiCorp communicates with and responds to the environmental community. 10 Although the RAMPP public advisory group and DSM Collaborative are useful in raising 11 and addressing environmental issues, at times it is our sense that these forums have been 12 somewhat removed from the strategic business decisions being made by upper management. 13 For the environmental community, developing relationships and channels to communicate 14 ideas at the level in the company where strategic business decisions are made is important. 15 An Environmental Forum, similar to that used in the UK, seems well suited to developing these types of relationships and elevating environmental issues to high levels within the 16 17 company.

18

19 Q. Are there benefits for customers and shareholders due to this type of improved20 communication?

A. Yes. Environmental costs are a significant impact for most utilities. They can be
particularly problematic if they arise suddenly without an opportunity for planning. By
identifying potential environmental problems early, improved communications with the
environmental community can reduce the risk of these unforeseen costs. Moreover,
improved communication can shift decision making away from adversarial approaches and
toward a more collaborative decision making process which can lead to more innovative and
cost-effective solutions.

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30 IV. ENERGY EFFICIENCY

³See Direct Testimony of Alan V. Richardson, Docket No. 98-2035-04, p.14, lines 4-5.

1		
2	Q.	Energy Efficiency, often referred to as Demand Side Resources (DSR), is another topic you
3		wanted to address. Why should the Commission care about the impacts the merger will have
4		on energy efficiency?
5	A.	PacifiCorp's experience with DSR in Utah has shown that energy efficiency investments can
6		meet growing electricity demands at lower cost than conventional supply-side resources,
7		with virtually no adverse environmental impacts. In addition, like renewable resources,
8		energy efficiency reduces the reliance on fossil fuels and thus has the added benefit of
9		reducing the risk that rising fossil fuel prices or stricter environmental regulations will raise
10		electricity costs.
11		
12	Q.	What is PacifiCorp currently doing with respect to energy efficiency?
13		
14	A.	PacifiCorp currently acquires cost-effective DSR identified through its RAMPP process. As
15		a result of the RAMPP-5 analysis, the company committed to acquiring 5-7 MWa of DSR in
16		Utah in 1998 and an additional 5-7 MWa in 1999. ⁴
17		
18	Q.	What does ScottishPower propose with respect to DSR?
19	A.	In response to the LAW Fund's discovery request LWF1-3(b)(4), ScottishPower has said that
20		they plan to maintain PacifiCorp's policy of acquiring cost-effective DSR identified in the
21		RAMPP process. This discovery response is attached as exhibit JN-2.
22		
23	Q.	How does the LAW Fund feel about ScottishPower maintaining the status quo?
24	A.	In general, maintaining the status quo on energy efficiency is acceptable. We feel that the
25		RAMPP process where the costs and benefits of DSR can be evaluated against those of
26		other resource types is a proper forum for identifying the appropriate level of DSR to
27		acquire.
28		
29 30	v.	OTHER ISSUES: DISTRIBUTED GENERATION, REGIONAL HAZE AND

¹ ⁴ See RAMPP-5 Report, December 1997, pp. 146-147.

1		CLIMATE CHANGE
2 3		
3	Q.	Do you have other issues you would like to address?
4	A.	Yes. I'd like to briefly discuss some issues surrounding distributed generation, regional haze
5		and global climate change.
6		
7	А.	Distributed Generation
8 9	Q.	Can you please give a definition of distributed generation?
10	A.	Yes. By distributed generation I mean small, modular generation sited near distribution
11		facilities or customer load centers that benefit the electric system, specific customers, or
12		both.
12		
13 14	Q.	Why is distributed generation relevant in this case?
	Q. A.	
	А.	One of the major benefits ScottishPower claims will result from the merger is increased
16		electric system performance and reliability. Indeed, as part of the merger, ScottishPower has
17		committed to meeting a number of network performance standards, and has estimated that
18		roughly \$30 million in capital investment for new infrastructure, primarily investments in the
19		distribution network, will be necessary to meet the standards. ⁵ Distributed generation may be
20		a cost-effective means of improving system performance and thus is relevant to the merger.
21		
22	Q.	Is distributed generation also relevant from an environmental perspective?
23	A.	Yes. Many distributed generation technologies such as natural gas-fired micro-turbines, fuel
24		cells and renewable resources have fewer environmental impacts than conventional fossil
25		fuel-fired resources. Incorporating cleaner distributed generation into the electric system
26		may reduce the need for conventional generation and thus yield environmental benefits. In
27		addition, distributed generation can reduce the need for traditional distribution system
28		investments, such as new lines, which have their own environmental impacts.
29		
30	Q.	Has ScottishPower determined that distributed generation will be part of its plan to increase

 ¹ ⁵For a description of the performance standards related to reliability and improved network performance see Direct
 ² Testimony of Bob Moir, Docket No. 98-2035-04, pp. 5-9. For the estimate of expenditures necessary to meet the
 ³ network performance standards see Mr. Moir's direct testimony, p. 15, lines 9-22.

system reliability?

2	A.	No. ScottishPower has yet to conduct a detailed assessment of PacifiCorp's operational
3		activities and, as a result, has not developed a specific portfolio of reliability-enhancing
4		investments for the PacifiCorp system. In response to discovery, however, ScottishPower
5		has indicated that they will explore any commercially efficient means to improve system
6		performance, and that this may include distributed generation.
7		
8	Q.	In its UK operations, has ScottishPower invested in distributed generation as a means of
9		improving system reliability and power quality?
10	A.	No. According to discovery responses from ScottishPower, small-scale distributed resource
11		technologies have not been a source of investment in the UK for improving system reliability
12		and power quality.
13		
14	Q.	For its UK operations, has ScottishPower conducted any studies or analyses to determine the
15		benefits of distributed generation to its electric system and its customers?
16	A.	No. According to discovery responses from ScottishPower, no such studies or analyses have
17		been conducted.
18		
19	Q.	What is PacifiCorp currently doing with respect to distributed generation?
20	A.	Like ScottishPower, PacifiCorp has made few, if any, investments in small-scale distributed
21		resource technologies for the purposes of increased system reliability. However, PacifiCorp
22		has conducted several preliminary studies analyzing the benefits distributed generation has to
23		its customers and its electric system and has identified distributed generation as a priority
24		technology area for potential investments and strategic initiatives. PacifiCorp is also
25		involved in marketing the deployment and management of distributed generation resources
26		in concert with power quality related products and services through a subsidiary. In addition,
27		as part of the on-going Public Service Commission Energy Efficiency and Renewable Energy
28		Task Force, the company has expressed a willingness to explore the development of a
29		distributed generation pilot program whose purpose would be to further identify and begin to
30		quantify the benefits of distributed generation to the company's electric system.
31		
32	Q.	With respect to distributed generation, what should the Commission keep in mind when

1 reviewing the merger?

2 A. As outlined above, neither PacifiCorp or ScottishPower seem to have much experience with 3 actual investments in distributed resource technologies. However, it appears that PacifiCorp 4 is somewhat ahead of ScottishPower when it comes to, at least, assessing the potential 5 benefits of distributed generation for its customers and electric system. If the merger is 6 approved we believe the Commission should encourage the company to build upon the 7 analysis that PacifiCorp has already done and ensure that distributed generation is fully 8 considered in ScottishPower's reliability enhancement plans. In addition, we would expect 9 the merged company to continue to work with other stakeholder groups on distributed 10 resource issues in appropriate Commission-sponsored forums, such as the on-going Energy 11 Efficiency and Renewable Energy Task Force. 12 13 14 B. **Regional Haze** 15 16 Q. Do you think the merger will have a positive impact on PacifiCorp's actions to help solve the 17 problem of regional haze in the Western United States? 18 I think it will. Over the past two years, PacifiCorp has been a leader in the Western Regional A. 19 Air Partnership's (WRAP) attempt to develop a consensus-based plan for solving the regional haze problem in the West.⁶ In the WRAP process, the company has worked closely 20 21 and in good faith with the environmental community. However, in the several months prior 22 to the merger announcement the company appeared to be less focused. I think this was 23 because management turnover and problems with its overseas ventures had forced the 24 company to pull back and reevaluate its activities, including the resources it was devoting to 25 addressing regional haze. Since the merger was announced, however, the company is again 26 fully engaged. Management for ScottishPower has been briefed on the issue and 27 PacifiCorp's has resumed its leadership role in working with the environmental community 28 to solve this problem. I think this is a positive development for the environment. 29

¹ ⁶The WRAP is a collaborative effort of tribal governments, state governments, various federal agencies, and a full

² range of stakeholder groups that was set up to promote the implementation of Grand Canyon Visibility Transport

³ Commission (GCVTC) recommendations for addressing regional haze on the Colorado Plateau.

- 1 C.
 - **Climate Change**
- 2

3 Q. Can you describe PacifiCorp's previous activities to address the risk of climate change? 4 A. Yes. As part of the RAMPP process, they have attempted to assess the financial risks to the 5 company of future regulations designed to reduce CO_2 emissions. In addition, as part of the 6 company's Climate Challenge agreement with the U.S. Department of Energy they have 7 agreed to fund at least \$1 million in small-scale carbon offset projects through the year $2000.^{7}$ 8 9 10 Q. How might the merger affect PacifiCorp's climate change activities? 11 A. I can't say for certain, but ScottishPower's experience with climate change issues in the UK 12 _____ in particular the company's commitment to work toward meeting the Kyoto protocol's 13 greenhouse gas emission reduction targets in a way that sensibly balances economic concerns 14 suggests that PacifiCorp's activities with respect to climate change will continue and, 15 perhaps, be improved. 16 17 VI. CONCLUSIONS 18 19 Q. Can you please summarize your conclusions regarding the environmental implications of the 20 merger? 21 22 A. Yes. I believe that in several important areas the merger will have positive implications for 23 the company's environmental performance. First, ScottishPower's commitment to 50 MW of 24 new renewable resources and its plan to file a green resource tariff will improve PacifiCorp's 25 environmental performance in the area of renewable resource development. Second, 26 ScottishPower's proposal to develop an Environmental Forum will facilitate communication 27 between senior managers in the company and key environmental leaders and help identify 28 pending environmental problems before they pose significant risks to the company and its 29 customers. Third, by resolving uncertainty concerning the company's priorities and

30 management, the merger should allow PacifiCorp to continue to play a leadership role in

¹ ⁷ See RAMPP-5 Report, December 1997, p.158.

addressing the problem of regional haze in the West. Fourth, given the position
 ScottishPower has taken on the risks of global climate change in the UK, PacifiCorp is likely
 to at least maintain its climate change activities and may well do more to address this issue.

4 Although the merger is unlikely to lead to an increased acquisition of energy 5 efficiency resources, the merged company will continue its policy of investing in cost-6 effective demand side resources. Finally, although an initial assessment suggests that 7 PacifiCorp may be further along than ScottishPower when it comes to evaluating the benefits 8 of distributed generation to its electric system, if ScottishPower builds upon PacifiCorp's 9 prior work in this area, and is willing to fully evaluate distributed generation as part of the 10 company's overall portfolio of system performance-enhancing investments, the merger could 11 lead to the increased deployment of environmentally friendly distributed generation 12 technologies.

All told, I believe that, with respect to environmental performance, the merger is inthe public interest.

15

16 Q. Does this conclude your testimony?

17 A. Yes.

18

Description of the Environmental Organizations

The **Grand Canyon Trust** is dedicated to the conservation of the natural and cultural resources on the Colorado Plateau. The Trust advocates an ecologically responsible and sustainable balance between resource use and preservation, along with the protection of areas of beauty and solitude. Headquartered in Flagstaff, Arizona, the Trust has two Utah offices, one in St. George and one in Moab. The Trust has approximately 4,500 members nationwide and approximately 325 members in Utah.

The Land and Water Fund of the Rockies (LAW Fund) is a regional non-profit environmental law center serving the Rocky Mountain states. The LAW Fund's Energy Project promotes energy efficiency, renewable resources and other environmentally sound energy options in the Rocky Mountain and Desert Southwest regions through selective interventions in regulatory and administrative proceedings.

The **Southern Utah Wilderness Alliance (SUWA)** is a non-profit organization under 501(c)(3) of the Federal Tax Code. The mission of SUWA is the preservation of the outstanding wildlands at the heart of the Colorado Plateau, and the management of these lands in their natural state for the benefit of all Americans. SUWA has approximately 18,000 members, 9,000 of whom live in Utah.

The **Wasatch Clean Air Coalition** is valley-wide organization devoted to reducing regional air pollution through education and selective regulatory interventions.