The EPA's Reinterpretation of New Source Review Rules: Implications for Economic Development in Rural America

A Preliminary Assessment by

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Introduction

Rural America is undergoing considerable economic stress. According to the 2000 Census, 22 percent of all counties lost population during the preceding decade while another 25 percent grew only marginally. The vast majority of these counties were located outside metropolitan regions. The exodus picked up between 2000 and 2001, with 45 percent of all counties losing population. Lower commodities prices and increased international competition, both for food and minerals, have depressed rural incomes and land values. In addition, many parts of rural America have suffered from a prolonged drought that has added to economic woes. This is particularly true in the High Plains where thousands of grain farmers have recently quit the land in the face of the worst drought in a century.[1]

The current economic downturn has been felt especially hard in rural communities. Manufacturing employment, which accounts for a larger share of jobs in non-metropolitan areas than in urban areas, has been declining for almost two years and will be slow to recover even as the national economy picks up steam. What's more, many rural counties are at a competitive disadvantage when it comes to economic development because they do not have access to the modern telecommunications infrastructure that is available in metropolitan regions.

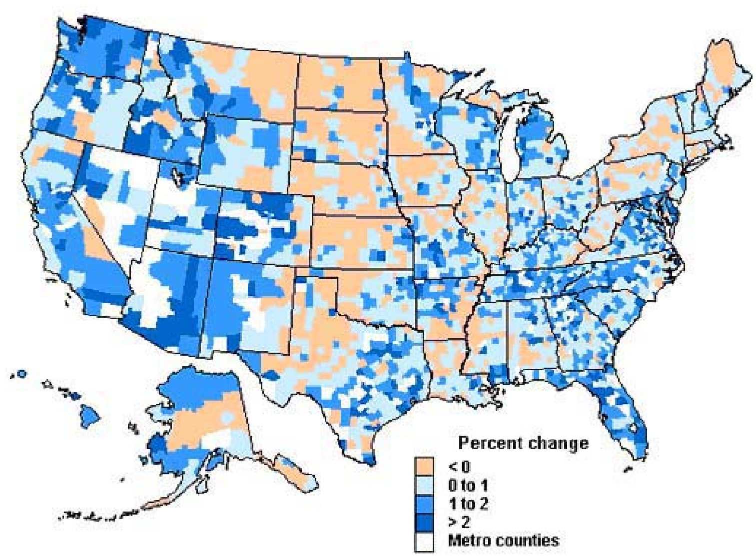
Against this backdrop, the Environmental Protection Agency's (EPA) new interpretation of the New Source Review (NSR) rules will make a bad economic situation worse for rural America. This is particularly the case for communities that are attempting to diversify away from commodities by attracting manufacturing enterprises, business services, tourism, and other growth industries. To the extent application of the NSR program to utilities and manufacturers serving or located in non-metropolitan areas inflates the cost of electric power or creates uncertainty about the reliability of delivery, businesses and households will be even less inclined to locate or expand in these communities.

[1] According to the latest assessment by federal officials, half of Montana, all of Wyoming, nearly two-thirds of Colorado, half of Kansas, a third of Texas and most of New Mexico are in the midst of drought conditions labeled "severe" to "extreme."

Economic Conditions and Outlook for Rural America

If a picture is worth a thousand words, a map speaks volumes. Figures 1, 2 and 3 dramatically display the "emptying out" of rural America, a trend that has been underway for at least the past five decades. All of the counties shown in variations of brown—684 to be exact—lost population between 1990 and 2000, mainly as a result of net out-migration. More than 1,335 other counties, again mainly rural, grew more slowly than the nation between 1990 and 2000. This out-migration from rural America actually accelerated after 1995. Between 1995 and 1999, 855 counties lost population and between 2000 and 2001, more than 1,400 counties recorded population declines. That represented 45 percent of the nation's 3,141 counties.

Figure 1. Nonmetro Natural Increase in Population, 1990-99



Source: Calculated by ERS using data from the U.S. Census Bureau.

Figure 2. Percent Population Change, 1990-2000

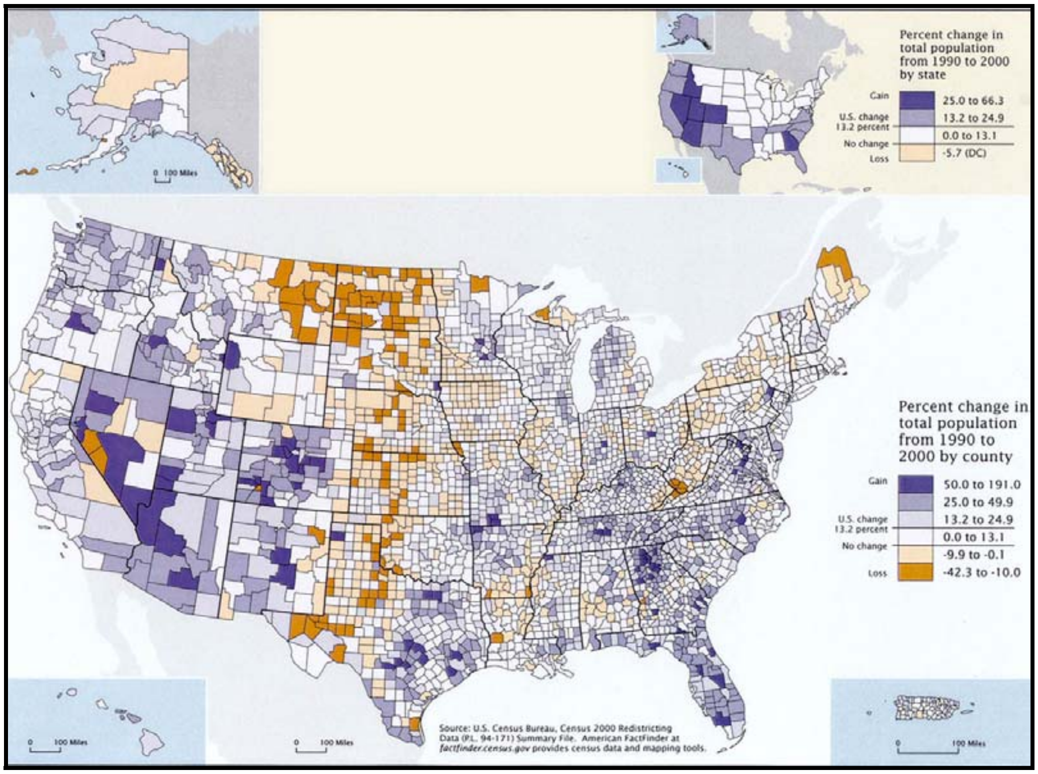
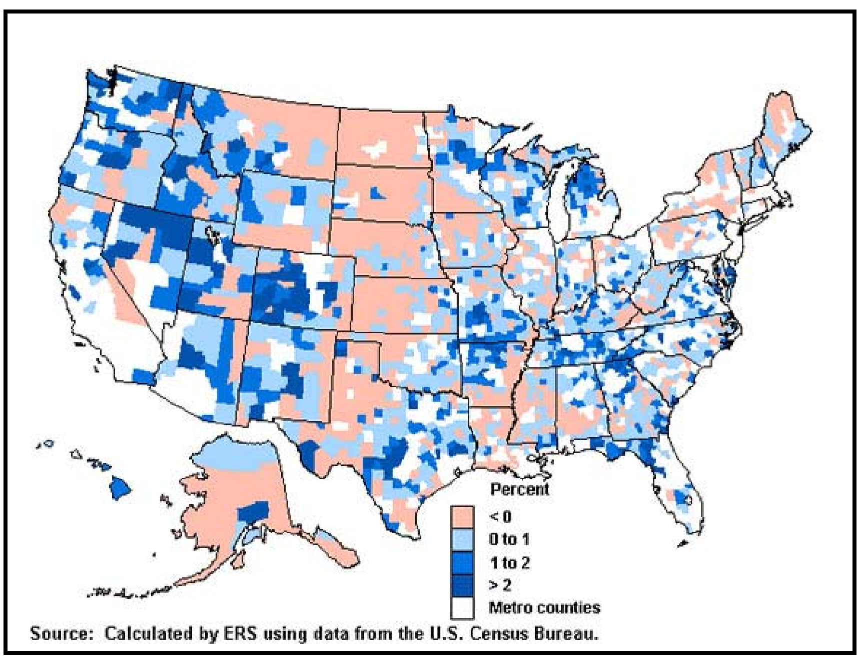


Figure 3. Nonmetro Net Migration, 1990-99



Rural America's population has slowed because of rising farm productivity and limited local economic opportunities. While farm output remains high, agricultural employment has dwindled to a mere 1.6 percent of the nation's 137 million jobs. What's more, large agribusiness firms increasingly dominate the agricultural sector, making many small family-owned farms with higher operating costs noncompetitive. And though rural communities account for about 20 percent of the nation's population, they account for only 18 percent of the nation's jobs (see Table 1).

Table 1. U.S. Employment by County Type

	Number of Counties	**2000*** *(thousands)*	**2001***	**Percent Change**
Rural Counties	2,276	25,174	25,245	0.3
Farming	556	2,190	2,206	0.7
Mining	147	1,130	1,130	0.1
Manufacturing	506	7,865	7,843	-0.3
Government	244	3,152	3,175	0.7
Services	329	5,194	5,229	0.7
Nonspecialized	494	5,644	5,662	0.3
Metro Counties	813	110,641	111,558	0.8
All U.S. Counties	3,089	135,816	136,803	0.7

*Through September
Source: BLS (employment); USDA (agriculture)

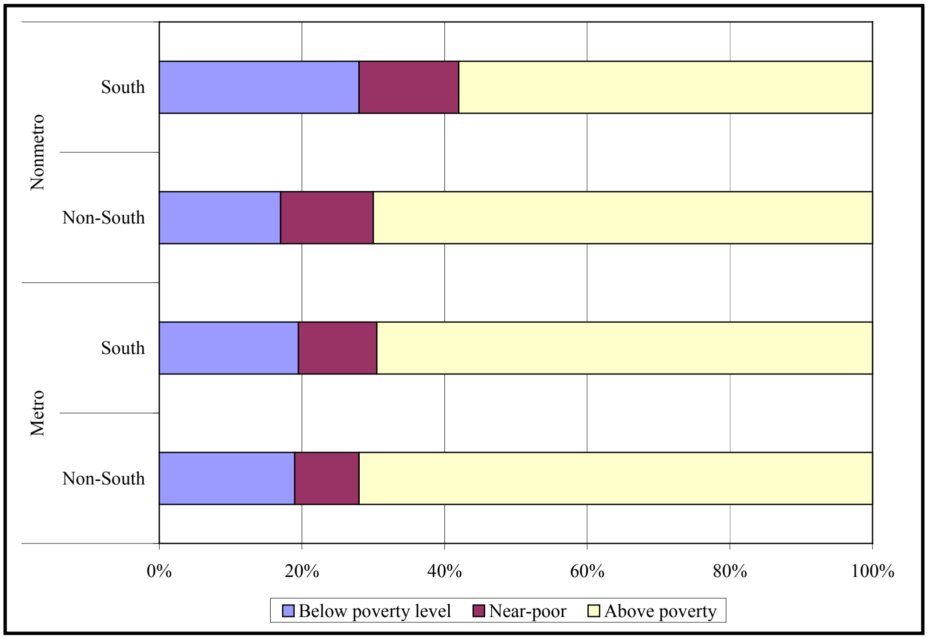
Not only has job growth in rural America lagged significantly behind that of urban areas, the same is true for average earnings (see Table 2). In 1999, earnings per non-farm job in nonmetro counties averaged $25,201 compared with an urban average of $36,684. The gap between rural and urban wages actually widened during the 1990s as earnings grew only 0.8 percent annually in nonmetro counties compared with a 1.5 percent average annual gain in urban counties. The only exception was local government employment, where earnings grew slightly faster than in metro counties. Poverty rates are also higher in rural counties than in urban counties (see Figure 4).

Table 2. Earnings per Nonfarm Job by Industry, 1999

	1999 Earnings		1991-99 Annual Percent Change	
	Nonmetro	Metro	Nonmetro	Metro
Earnings per nonfarm job	**$25,201**	**$36,684**	**0.8**	**1.5**
Agricultural services, forestry, fishing, and other	15,004	20,074	-0.6	0.6
Mining	43,942	71,528	1.7	6.4
Construction	27,080	37,451	0.5	0.7
Manufacturing	33,945	50,948	1.2	1.7
Transportation and public utilities	38,612	49,215	1.0	1.4
Wholesale trade	30,529	48,924	1.4	2.0
Retail trade	15,136	19,491	0.7	1.3
Finance, insurance, and real estate	18,538	42,269	1.8	4.4
Services	20,291	33,204	1.2	1.6
Government and government enterprises	31,875	42,126	1.0	1.1
Federal civilian	55,047	65,768	1.8	2.0
Federal military	27,523	36,063	1.1	1.2
State and local	30,047	38,695	1.0	0.9
State	33,534	38,908	0.8	0.9
Local	28,772	38,611	1.1	1.0

Source: ERS analysis of Bureau of Economic Analysis data

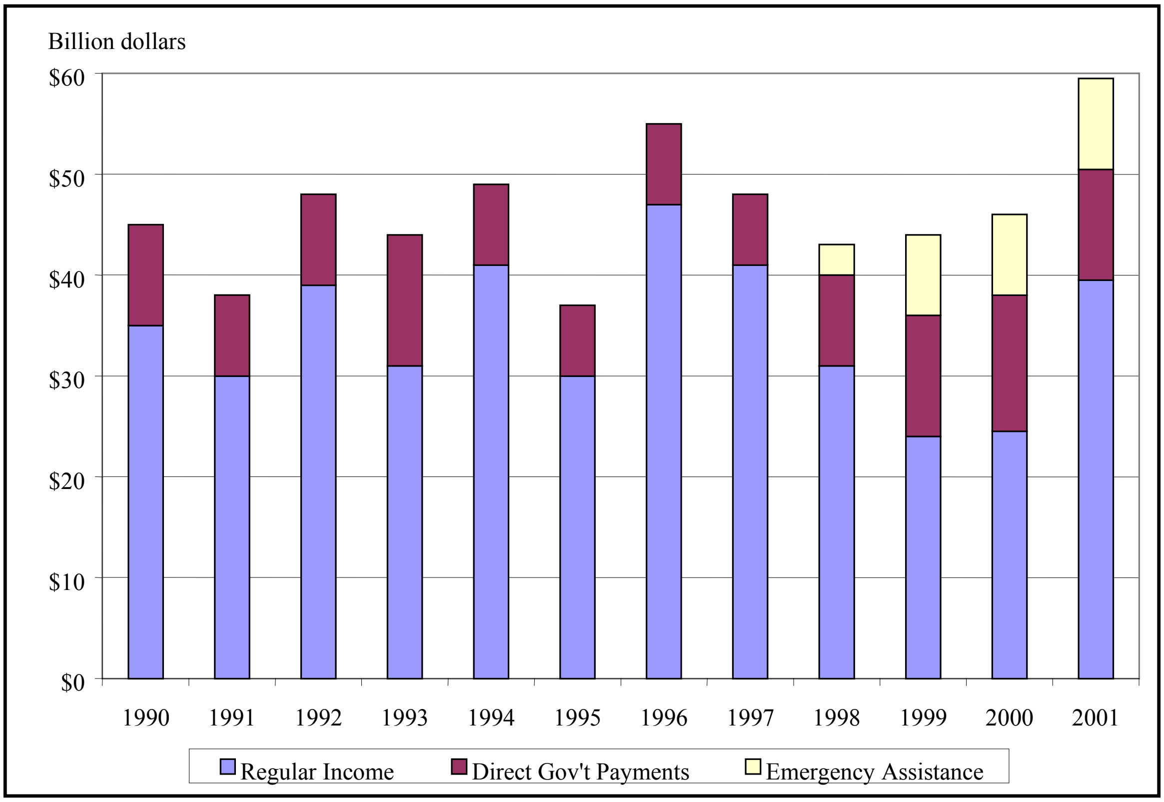
Figure 4. Poverty Status of Children Under 18, 1998



Source: Bureau of the Census

Because of over-supply and growing international competition, farm prices and incomes have been depressed for a number of years (see Figure 5). In fact, "earned" farm income in 2000 was lower than in 1990. "Unearned" farm income, in the form of subsidies and emergency payments, has helped to make up the difference. Last year, for example, net cash farm income reached a record $59.5 billion. But every third dollar came from the government and more than 40 percent of those payments came in the form of emergency aid. And the energy bill working its way through Congress will provide up to another $5 billion in subsidies for grain farmers producing ethanol. In short, the agricultural sector is becoming more and more dependent on federal largess for its survival—another indication of the continuing economic stress facing rural America.

Figure 5. U.S. Net Farm Income

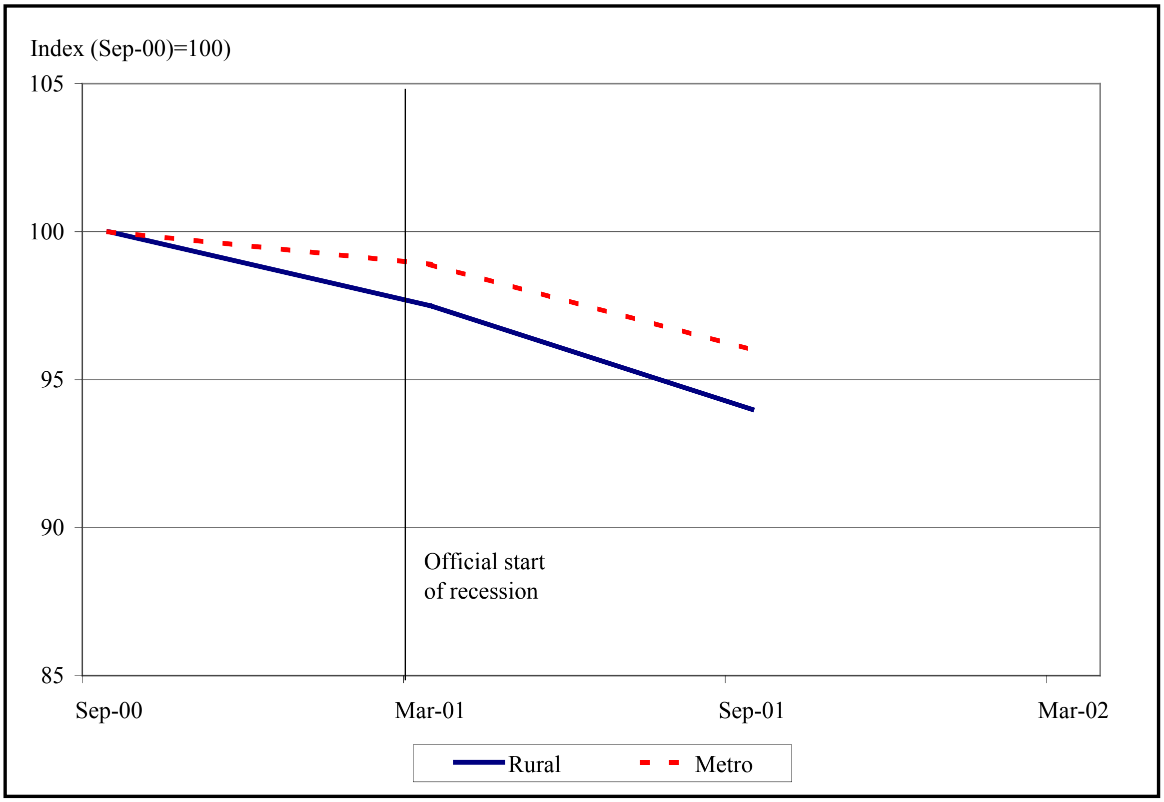


Source: USDA

The recently passed $73.5 billion farm bill will probably do little to help farmers or encourage rural economic development. Because the lion's share of the farm subsidies will flow to large agribusiness corporations, the bill may actually hasten the demise of the family farm. Rather than bolster rural communities, it could drive up land prices and force small producers out of farming. Rather than enhance the competitive posture of U.S. farmers, it could result in further overproduction of certain crops and discourage farmers from producing others of higher value.

The current (or recent) recession, coupled with the economic disruptions from 9/11, has also had a disproportionately negative effect on rural America. Job rolls in many nonmetro counties have contracted, especially in the manufacturing sector (see Figure 6). Prior to the September 11 attacks, rural manufacturing jobs had already fallen 5.5 percent from the previous year. In the aftermath of 9/11, rural manufacturing job losses accelerated. As manufacturing declined, so did other rural economic activity. By the late fall of 2001, job growth in the service sector had been cut in half. Construction activity, another bellwether sector of the rural economy, has also contracted despite record-low interest rates.

Figure 6. Manufacturing Employment in the 2001 Recession



Source: Bureau of Labor Statistics

The national recession may or may not be over. Some forecasters believe a sustainable economic recovery is under way while others fear a "double-dip" recession is in the cards. In either case, the prospects for rural America aren't bright. Any national economic recovery is likely to be prolonged and sluggish, with manufacturing a lagging sector. Agricultural exports, a major source of farm income, have fallen in recent months and may fall even further with the prospect of an international trade war. The threat of rising protectionism also does not bode well for manufacturing industries in rural communities.

Against this backdrop, the EPA has been reinterpreting its NSR rules in ways that may drive up costs for investor-owned utilities and co-ops, especially those serving rural communities. It is to this issue we now turn.

New Source Review: Impacts on Investor-Owned Utilities and Co-ops

New Source Review (NSR) is a complex program created by various provisions of the federal Clean Air Act (CAA). NSR requires electric utilities to undergo review for environmental controls if a power company builds new plants or if "non-routine" changes are made to existing power plants that result in a significant increase in emissions. The NSR permitting program imposes control technology requirements of varying stringency, depending on whether the source is located in an area that does or does not meet national ambient air quality standards. NSR is an extensive and costly process that can take a year or longer to complete.

Recognizing that it would be prohibitively expensive to force utilities to retrofit existing facilities, Congress did not require older plants to meet the same control technology standards required for new sources—unless the owners greatly expanded the plant's fuel burning capacity and its ability to emit pollutants. Similarly, the NSR permitting requirements do not apply to routine maintenance, repair, or replacement of failed or degraded equipment. As regards non-routine changes, the CAA and EPA's rules specifically require that the *change* cause the emissions increase as opposed to weather, degraded equipment, or increased power demand.

While the EPA has never explicitly defined what it considers to be "routine," the agency has, until recently, applied a commonsense understanding of the term. Accordingly, utilities have engaged in activities such as replacement of degraded equipment or failed components, as well as other repairs needed for reliable, safe and efficient operations, without being subjected to NSR permitting requirements.

But in 1999 and 2000, the EPA commenced a major enforcement initiative that has repercussions for virtually every coal-fired utility plant in the country for repair and maintenance activities undertaken over the past 20 years. Specifically, the U.S. Department of Justice, acting on behalf of the EPA, filed lawsuits against eight utility companies—affecting 106 generating units—alleging that these utilities had engaged in "modifications" of their generation units without first obtaining NSR permits. Fourteen generating units of the Tennessee Valley Authority (TVA) also received administrative orders. The utilities countered that they had simply conducted routine maintenance activities that the EPA had implicitly approved for nearly three decades. In essence, the EPA now says that, generally, *any* maintenance activity can trigger NSR, even if the activity results in no increase in unit size or emission rates but only improves the safety, reliability, efficiency, or availability of the generating unit.

The implications of this reinterpretation of NSR rules are enormous and costly. The EPA is threatening to sanction the utilities with heavy fines and is requesting that utilities retrofit their plants by installing new pollution control equipment. Dozens of other utilities, as well as industrial plants in other industries, are also concerned about being targeted by the EPA. In light of these lawsuits, utilities are now faced with deciding whether to continue to make routine repairs on their plants—the same kinds of repairs that triggered the enforcement actions—or to forgo this maintenance and risk eventual plant shutdowns or unexpected outages.

If utilities defer routine maintenance for fear of EPA action, efficiency and reliability may deteriorate and some units may be put out of service. What's more, EPA's enforcement approach targets precisely those electric power plants, mainly coal-fired, that need to be repaired so as to produce electricity without increasing emissions. Here, again, rural utilities and communities will be affected disproportionately. Nationwide, coal accounts for 55 percent of all power generation. But for the electric co-ops serving rural areas, 76 percent of generating capacity is coal-fired.

With electric demand high, and with transmission constraints in certain parts of the country, electric reliability across the country may be seriously threatened. Indeed, one conservative estimate suggests that discouraging efficiency improvements made routinely in maintenance cycles could foreclose 6,000 to 12,000 megawatts of power in the near term, the equivalent of building 20 to 40 new 300 megawatt plants with no new emissions.

In a recent assessment, the TVA concluded that obtaining NSR permits for routine maintenance projects would seriously disrupt the operations of fossil fuel plants and thereby undermine the reliability of its electric service. TVA's analysis indicates that within the first three years of implementation, there would be a loss of 10.45 percent of the total electrical capability of their fossil fuel system. Within 20 years, this would increase to a loss of more than 32 percent. The actual loss of generation capability would probably exceed these percentages since the TVA analysis assumed the required permits would be in place at the time of implementation of maintenance projects, which is not likely to be the case.

As mentioned above, NSR is a lengthy process, often taking a year or more. When generating plants are shut down for NSR—or if they become inoperable because routine maintenance has been deferred to avoid an EPA action—the IOU or co-op utility may have to purchase replacement power in the wholesale market. In these types of circumstances, purchased power almost always exceeds the utility's costs of generated power, in some cases on the order of three-to-one. Consequently, the utility will have to pass on these higher costs to its customers. The implications for rural households and businesses are particularly onerous.

Impacts of rising electric rates on rural businesses

As noted above, NSR may well increase the cost of providing electric power and also diminish service reliability, with disproportionately negative effects on businesses and households in rural communities. For example, in a 1995 survey, executives of businesses located in the northeastern U.S. were asked to identify the criteria and order of importance for selecting an expansion site. Ample electric power at competitive rates tied for the most important criteria with real estate costs.[2] The author of this research concludes that low energy costs, availability, and reliability are all key to business attraction and development.

An examination of total electric consumption expenditures estimates for metropolitan area and non-metropolitan area counties in Texas and Illinois clearly shows that businesses operating in non-metropolitan counties already spend considerably more on electric services than their metropolitan counterparts.[3] For Illinois, electric service expenditures by businesses located in metropolitan counties represent 1.6 percent of total outlays. In comparison, businesses in non-metropolitan Illinois counties spend 2.3 percent of total outlays on electric services (see Figure

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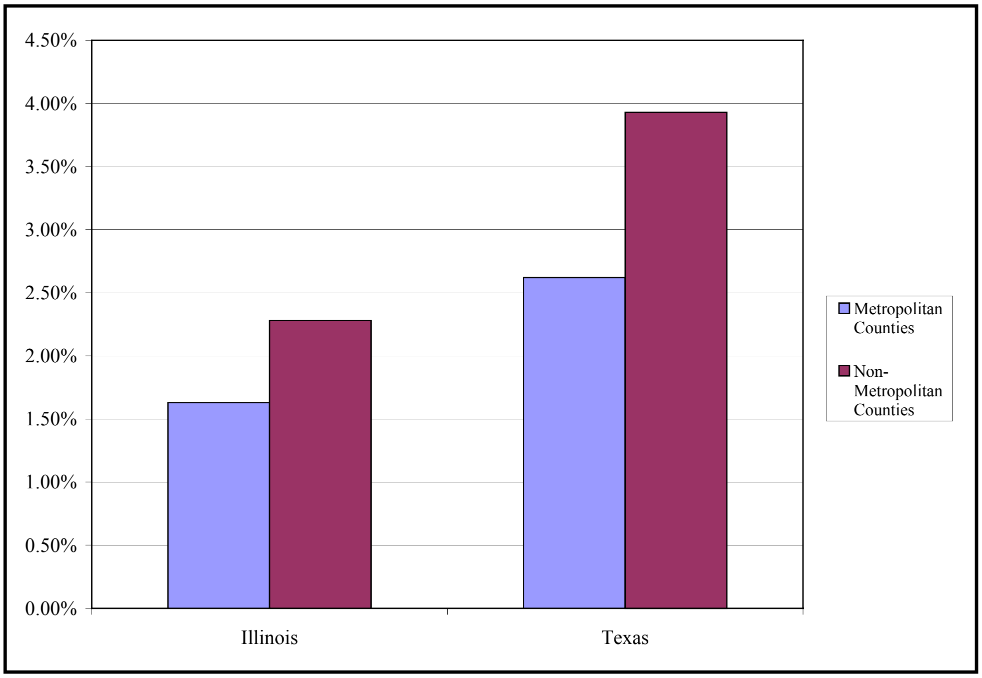
[2] Bohmeyer, L. (1996). Electric utilities and retail wheeling: The effect on economic development. *Economic Development Review*, 14(2), 51.

[3] These estimates are based on industry consumption data in the IMPLAN input-output economic models developed by the Minnesota IMPLAN Group, Inc.

7). Similarly, electric service expenditures by businesses in Texas non-metropolitan counties are 3.9 percent of total outlays versus just 2.6 percent for metropolitan areas.

Figure 7. Business Electric Consumption Expenditures as a Percent of Total Outlays

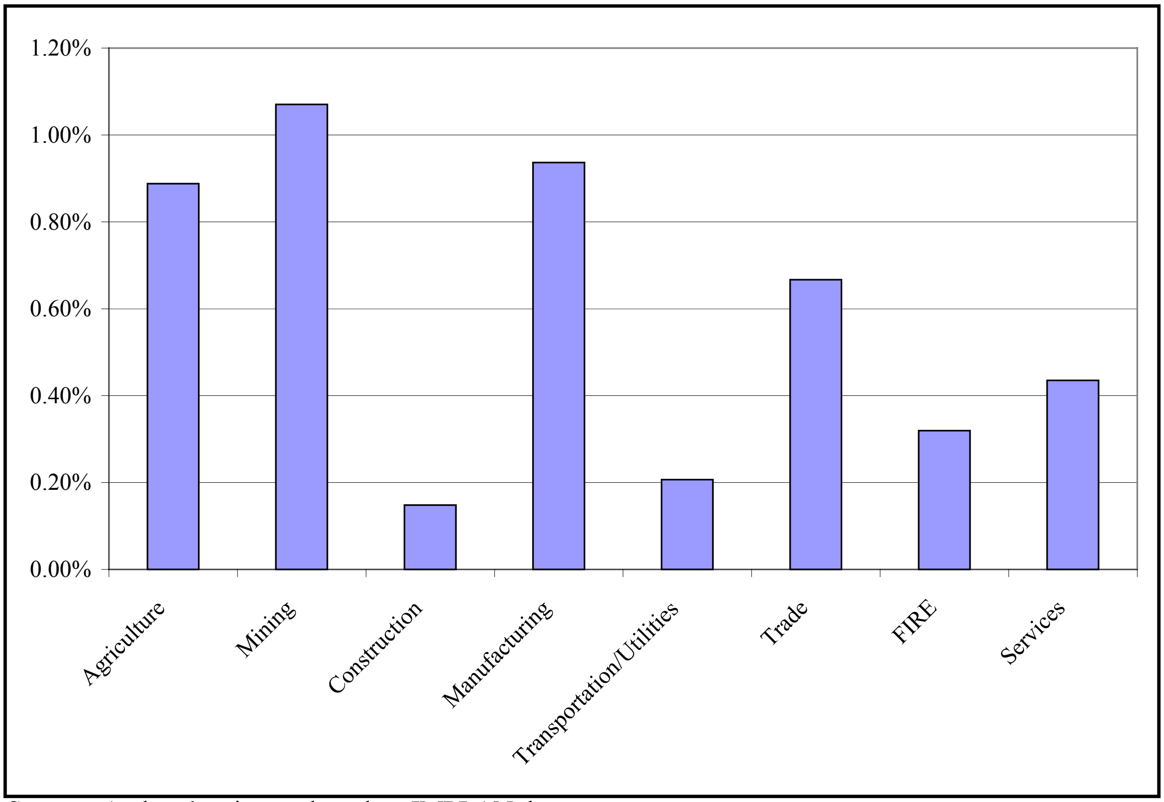


Source: Authors' estimates based on IMPLAN data.

Higher electric service expenditures place rural businesses at a competitive disadvantage, or at least offset other advantages, versus businesses in urban areas. This places additional economic pressure on regions that are already under great stress, as noted earlier. What's more, those industries that make up the greatest share of rural-based business activity are those that are most sensitive to electricity price changes.

As shown in Figure 8, the largest consumers of electricity, as a proportion of total output, are the agriculture, mining, and manufacturing industries. Agriculture and mining have historically been the mainstays of the rural economy. And manufacturing industries are held out as the long-term hope for future sustainable economic development in rural America.

Figure 8. Electric Service Expenditures as a Percent of Total Industry Output

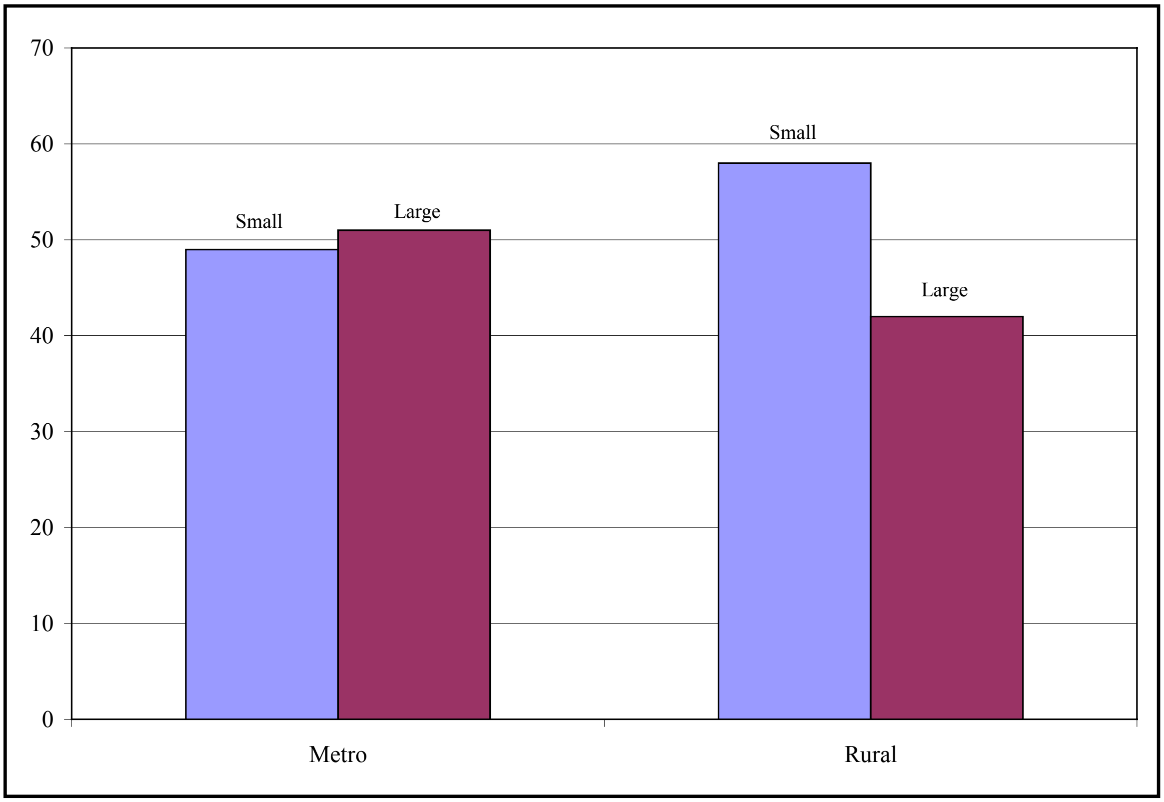


Source: Authors' estimates based on IMPLAN data.

Not only do rural businesses across all industries spend a higher proportion of their total outlays on electric utility services, the industries that are most highly concentrated in rural communities are, on average, the largest consumers of electric services. Therefore, regulatory actions that may lead to higher electric power costs will give rural industries a double-whammy at a time of serious economic distress.

Small businesses in rural areas, operating on thin profit margins, are particularly vulnerable to an uptick in power prices. Small firms account for 90 percent of all rural establishments and, in 1998, employed nearly 60 percent of rural workers and supplied half of rural payrolls (see Figure 9). In all, about 1.2 million small firms are found in rural America, with nearly three-fourths of them employing few than 20 workers. Many home-based businesses are also found in rural areas. For example, in a random survey of rural households in nine states, 9.6 percent were found to have at least one member who was generating income from home, excluding agriculture.[4] Gross incomes from home-based businesses were found to range from $16,111 to $21,645. Although small in scale, home-based businesses make a significant contribution to rural areas by offering a variety of services and products that could not be economically supported by these communities as full-time establishments. Further, they provide critical supplemental income to family farmers who might otherwise give up agriculture entirely.

Figure 9. Share of Employment by Firm Size



Source: SBA, U.S. Census

Impacts of NSR on The Role of Electric Utilities and Co-ops in Rural Economic Development

Investor-owned and cooperative electric utilities are usually the leaders in organizing and funding economic development efforts in rural communities. These electric companies work to

[4] Heck, R. et al. *Home-based Employment and Family Life.* Westport, CT: Auburn House, 1995.

strengthen community organizations, provide funding for downtown revitalization efforts, develop new industrial parks, promote tourism, and serve as a clearinghouse for the information needs of prospective businesses.[5] Electric service providers often provide incentives to businesses looking to locate or expand in rural or distressed communities through targeted rate discounts. These discounted rates are offered for load retention, cogeneration deferral, and economic development.[6] However, rising costs and looming competition will likely force these companies to scale back their financial and resource contributions to local economic development efforts, especially in rural communities. As noted by Ernest Waters, manager of economic development for GPU Energy in Reading, Pennsylvania: "As competition narrows in our markets, the area that you can make money in may decrease, so we may become even more stringent in looking at the kinds of projects we will support."[7]

As costs increase because of the EPA's new interpretation of NSR rules, competitive pressures will be exacerbated and rural electric companies may have little choice but to cut back on their support of local economic development activities. Even those cooperatives that may not see their markets opened to competition in the near term will still have to respond to higher regulatory costs by cutting expenses or raising rates. For many rural communities, there is little or no institutional capacity to fill the void in resources and funding for economic development if electric service companies are forced to reduce their role in rural development.

Impacts of higher electric rates on rural households

To the extent service providers are forced to raise electric rates to offset higher regulatory costs, competitive pressures may place these rate increases disproportionately on residential customers. As noted in our introduction, poverty rates are typically higher in rural communities, and it is the lowest income earners who are most affected by increasing utility rates.

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[5] See Hooks, S. (1993). Organizations in Economic Development: The Edison Electric Institute. *Economic Development Review*, 11(4), 89.

[6] Carlson, R. and Sipe, D. (1995). Guidelines for grating industrial rate discounts. *Public Utilities Fortnightly*, 133(2), 18.

[7] Quoted in: Thuermer, K. (1997). Utilities and Economic Development. *World Trade*, 10(10), 89.

According to the most recent survey of household energy consumption conducted by the Energy Information Administration of the U.S. Department of Energy, the lowest income households, even accounting for life-line and other assistance programs, pay a much higher proportion of their total earnings for electric utilities (see Table 3). Households with earnings below the federal poverty line are spending more than 4 percent of their income on electricity. Moderate and upper income households pay less than 2 percent of income for their electricity.

Table 3. Average Annual Electric Energy Expenditures per Household, 1997

1997 Household Income	Average Annual Electric Energy Expenditures	Percentage of Top of Scale Income
Less than $10,000	$ 629	6.3%
$10,000 to $24,999	$ 753	3.0%
$25,000 to 49,999	$ 856	1.7%
$50,000 or more	$ 1,127	1.5%**
Below Poverty Line+	$ 705	4.2%
Eligible for Federal Assistance*	$ 727	Varies by state

+ The 1997 federal poverty line for a family of four is $16,400.
* Below 150 percent of poverty line or 60 percent of median state income.
** Percent of $75,000 income.
Source: Household Energy Consumption and Expenditure, U.S. Energy Information Administration.

Conclusion

Rural America is probably in the direst economic straits since the Great Depression. People and jobs are leaving many rural counties as a prolonged drought continues, farm incomes remain stagnant, and opportunities in mining, manufacturing and other businesses have evaporated. All these trends have been exacerbated by the current economic downturn, which has disproportionately afflicted farmers and rural communities.

Historically, attracting industry to non-metropolitan communities has been a difficult sell because lower labor costs are often offset by a lack of infrastructure, long distances from suppliers and markets, and high utility costs. Rising electricity costs due to compliance with the EPA's new interpretation of NSR requirements will likely fall disproportionately on rural businesses and households, especially those with the least financial ability to pay higher utility rates. This will add to the disincentives of rural living and may well contribute to the already accelerating loss of population, family farms, and home-based businesses in many rural areas of the United States.

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