

Journal of Rural Social Sciences

Volume 32 | Issue 2

Article 4

12-30-2017

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Recommended Citation

Beckley, Thomas. 2017. "Energy and the Rural Sociological Imagination." *Journal of Rural Social Sciences*, 32(2): Article 4. Available At: <https://egrove.olemiss.edu/jrss/vol32/iss2/4>

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Journal of Rural Social Sciences, 32(2), 2017, pp. 69–97.
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ENERGY AND THE RURAL SOCIOLOGICAL IMAGINATION

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ABSTRACT

Energy is the lifeblood of any society. It drives a society's material culture and the reproduction of that culture. It is essential for the production of food, shelter, clothing, and for transportation, trade and communication. This paper makes the case for a rural sociology of energy. Relative to the impact that energy issues have for rural places and people, energy, as a subject area, has been understudied by rural sociologists and is infrequently represented in the journals devoted to rural sociology and rural studies. Energy production and distribution activities such as coal mining, uranium mining, hydroelectric dams, wind farms, nuclear, biomass and ethanol production facilities, transmission lines, pipelines, shale gas development, and other energy related activities clearly have major implications for rural life. These activities affect power relations in local areas, landscape and amenity values, labor markets, economic development, income, poverty, health, mobility, and many other thematic areas that are common in rural sociology and rural studies. This paper presents an analysis of energy related content to the major journals where rural sociologists publish; including, *Journal of Rural Social Science* (formerly *Journal of Southern Rural Sociology*), *Rural Sociology*, *Sociologia Ruralis*, *Journal of Rural Studies*, *the Journal of Rural and Community Development and Society and Natural Resources*. Some speculation is offered on historical reasons for the lack of attention to energy issues. The manuscript ends with an invitation to turn our collective sociological imaginations toward an explicit rural sociology of energy across several themes and through several specific research questions.

Ultimately, society and possibly our species will succeed or fail based on how we deal with three basic human needs, food, water and energy. The overall success or measure of society should be of significant concern to rural sociologists. After all, our task is to study human society—its organization, its functioning, its transformation of material and space. We study the application of human labor to various purposes, issues of equality and inequality, social stratification, power and governance, ownership of and access to critical natural, social, and economic resources. To date, the dominant tradition in rural sociology has involved a detailed examination of social dimensions of our food system, particularly food production. This has been an appropriate line of enquiry as food is a critical resource to the reproduction and flourishing of human society and one that occurs primarily in rural space. A rural sociology of water, I believe, could be another fruitful line of enquiry, but that is a topic for another day. To date, the attention rural sociologists

*I would like to thank Jeffrey Jacquet, Troy Hall and Bill Heffernan for reviewing an early draft of this work. I would also like to thank John Parkins, Rich Stedman, Louise Comeau, Kate Sherren and others on our Energy Transitions research team for creating a lively intellectual environment for discussing energy and social science. Thanks also to the Canadian Social Sciences and Humanities Research Council for funding our investigations into energy issues in Canada.

have paid to food and agriculture is grossly disproportionate to the attention paid to energy. A rural sociology of energy, I believe, could be a boon to the discipline and a boon to rural-themed social science journals. Whether we ultimately choose to study the phenomenon more intensively or not, energy issues will continue to have profound effects on rural lives and rural places.

The purpose of this manuscript is to provide an overview of past contributions that rural sociologists have made in rural-themed journals to our understanding of the social consequences of energy generation and development, energy transmission, and energy consumption. These aspects of energy have shaped rural life and dramatically altered rural landscapes but to date have not received much scholarly attention in journals devoted to rural social science. The primary focus of this manuscript is inattention to rural energy themes in the United States and Canada, though I review several international journals as well. The decline in farm population (Dewar, Tait, and Wang 2009; Dmitri, Effland, and Conklin 2005), and “traditional rural culture” in Canada and the United States has led to periodic crises for North American rural sociology, in part because the discipline has been closely tied to one sector, agriculture. Attention to energy extraction, production, transmission and distribution as a social and economic driver in rural places could add some thematic diversity and be a boon to the discipline. Energy social science is growing in leaps and bounds and my sincere hope is that the scholarship devoted to energy impacts on rural places is held in journals and conferences devoted to rural scholarship.

I wish to make it clear at the outset that rural sociologists have and are making important contributions scholarship at the intersection of energy issues and sociological phenomena. My argument is that until very recently, these contributions have been made by mavericks seeking opportunities outside the main rural social science journals. I suggest that our collective attention to energy issues in rural social science journals have been scant relative to the opportunity that exists. The social impacts of current and forthcoming energy transitions, whether unconventional oil and gas development, renewable and/or distributed energy systems, will be profound for rural places and rural people. Traditional occupations will change. Communities will need to respond to a changing climate and changing policy and investment trends. All these developments present an opportunity to the discipline.

The title of this manuscript pays homage to C. Wright Mills (1959) who popularized the idea of the sociological imagination. It is a term interpreted in many ways, but at its essence it refers to taking a broad view of societal phenomena. It

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suggests a nonexclusive brand of scholarship that combines history, politics, economics, psychology, and sociology to examine how things are, what happened in the past to make things the way they are, and ultimately to imagine how things might be different. Perhaps most important, it is about making connections.

Energy represents an incredibly rich opportunity for rural sociology. As citizens, as consumers, and as residents of our communities, we do not often critically examine energy-related issues. When we turn on a light switch, we generally do not imagine atoms splitting, or water rushing through a turbine or utility linesmen maintaining power lines or members of regulatory boards setting prices, yet all these complex social relations are at play when the lights go on. Similarly, when we fill our vehicle with gasoline, we do not often think of rail car explosions in Lac Megantic, Quebec, or how the simple act of fueling up is connected to corn farmers in Iowa, heavy-equipment operators in Alberta, soldiers on the ground in the Middle East, or negotiators at annual international climate change meetings, yet all these things are connected.

In rural contexts, energy issues are intricately tied to spatial patterns of energy production, distribution and consumption. The generation of mechanical power in kilowatts and gigajoules has everything to do with the exercise of social and political power in markets and policy arenas. Wind farms are springing up across North America. Some are owned by local cooperatives, others by multinational corporations or state monopolies. The race to be a leader in renewable energy is on and it is a race between firms, between regions, and between nations. Will rural places be laggards or leaders in how we address the ways energy generation contributes to climate disruption or climate change mitigation and adaptation? Shale gas development is spurring a new rural boom in locales with particular geologies. Extraction of shale gas is dividing communities, states, and provinces over issues of development, waste, royalties, and employment. Biofuel and biomass energy production are viewed as potential saviors to many in the beleaguered forestry and agricultural sectors. The emergent consensus regarding the anthropogenic contributions to global warming, and the role of fossil fuel combustion in that equation means that all rural and local energy generation is connected to the global scale.

The opportunities for a rural sociology of energy are immense, and while there is encouraging recent interest in the topic, that potential has not been realized. While this represents a missed opportunity in the past, going forward energy issues will continue to have a huge influence in the transformation of rural space, rural communities, and rural livelihoods. The next section of this paper reviews past rural

sociological work on energy in traditional rural sociology publication outlets. Space does not permit a comprehensive review of this literature. What follows is an overview of the types of energy-related subjects with which authors have engaged in rural social science journals. Following that, I describe some specific historical cases of missed opportunities and speculate about why we have chosen to turn our collective sociological gaze elsewhere. The final section of the paper is an invitation and discussion on ways in which we might turn our sociological imaginations toward energy issues. I offer illustrative, but not comprehensive suggestions for what that body of work might look like.

The Situation: Rural Sociology's Historic Silence on Energy

There have been some attempts by sociologists over the years to address conceptual and theoretical links between energy and society. Perhaps most notable in this regard is Fred Cottrell's book, *Energy and Society* (1955). Others have also examined what they describe as the "energetics" of society (societies relationship with energy and energy flows through the socioeconomic system). Rosa, Machlis, and Keating (1988) reviewed some of these in the *Annual Review of Sociology*. Several of these macro examinations of energetics and society were written by social scientists from other disciplines such as anthropology (White 1943) and economics (Daly 1977; Georgescu-Roegen 1976). While the present manuscript is primarily focused on the discipline of rural sociology, our parent discipline of sociology has not performed much better regarding energy themes. Perhaps this is best exemplified by the fact that it has been more than 27 years since the *Annual Review of Sociology* has published a manuscript on energy, whereas themes of race, gender, inequality, family dynamics, mobility and ageing are featured every two to five years.

For this manuscript, energy issues mean activities related to the generation, transportation or transmission, and consumption of energy commodities. While the consumption side of energy (services and amenities) is interesting and worthy of sociological inquiry, the production, supply-side and upstream (sources and commodities) aspects of energy feature more prominently in this review. These activities disproportionately occur in rural space and affect rural society. This upstream, production and distribution side of energy includes any or all of the following: oil development, hydroelectric installations, wind energy installations, nuclear, coal, solar, tidal energy, biomass, geothermal, conventional and unconventional natural gas activity, and other energy related mining (uranium, oil sands). While traditionally these activities have been centrally located, dominated

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by large institutions (including government monopolies and Crown corporations in Canada), new technologies are creating the possibility of new social relations from distributed energy systems. These activities and the social relations around them matter because they are integral to how rural society changes and evolves. They are also central to how rural society relates to urban society.

A Systematic Review of Rural-Themed Academic Journals

To assess the degree to which rural sociology has addressed energy issues or treated energy themes, I reviewed the content of six journals from their inception to the end of 2015.¹ Three journals, *Rural Sociology (RS)*, *Sociologia Ruralis (SR)*, and *Journal of Rural Social Sciences (JRSS)* [formerly *Journal of Southern Rural Sociology (SRS)*], have historically been edited, read, and contributed to by rural sociologists over the past eight decades. *JRSS* has recently broadened its reach and mandate with its rebranding in 2010. *RS*, published since 1936, has been the longest published by more than three decades. *SR* has a predominantly European focus, though all three of these rural sociology journals frequently host international content.

Additionally, I reviewed the *Journal of Rural Studies (JRS)*, *Society and Natural Resources (SNR)* (founded by two rural sociologists), and the *Journal of Rural and Community Development (JRCD)*. The latter three journals have a broader disciplinary base, though rural sociologists contribute to them frequently. To review the content in these journals, I began with a search of titles of all manuscripts, research notes, policy forums, etc. since their inception. I included introductory comments to special issues or commentary pieces if they exceeded four journal pages (and thus seemed substantive contributions in their own right). If titles contained topics or themes that might include energy content, I would proceed to key words and abstracts for a more in depth review. Search words included energy, mining, oil, natural gas, coal, wind, ethanol, TVA, biofuel, biomass, nuclear, hydroelectric, and dam. Manuscripts on mining were only included if they were energy-related mines (coal, uranium). Climate change articles were not included unless an energy dimension to climate change was referenced explicitly. Once the population of manuscripts was gleaned, I cleaned data with a more

¹One reviewer for this piece suggested that I track the work of rural sociologists, but I consider this methodologically impossible to do. It would require a global or North American database of all self-described rural sociologists as far back as the discipline existed and searching each one's body of work for energy related content. Searching the top rural sociology journals is the best proxy to support my argument that institutionally, rural sociology is missing an opportunity to examine an important issue to rural life and livelihoods.

detailed scan. In that process, manuscripts that dealt exclusively with nuclear families were excluded (Strauss 1969), but ones that involved nuclear families and nuclear facilities were included (Freudenburg and Davidson 2007). Additional searches with words such as “boomtown” and “offshore drilling,” revealed additional manuscripts that did not explicitly contain references to energy or energy-related technologies in the titles. If a manuscript looked as though it may deal with energy topics, I would examine it more closely (read the full abstract or introduction). Some manuscripts on rural development or other topics that treat or include rural places that have energy-based local economies or livelihoods may have been missed. Sometimes locales or contexts are embedded in manuscripts and not evident in abstracts, titles, or keywords. For the most part, I attempted to cast the net widely, and was inclusive rather than exclusive. For example, a set of manuscripts that deal with energy and energy conservation on farms from the 1980s from *RS* is included although agriculture is the primary focus of this scholarly thread. As well, I include a piece in which on environmental concern in which wind energy represented a single question on a survey (Hamilton et al. 2014). Results are presented in Table 1. My expectation was that the number of energy-related manuscripts would be small. This was born out.

RS is the oldest journal and as a result has the most total manuscripts of the six journals reviewed at 2402. This includes research articles and research notes, as well as presidential addresses. The analysis reveals that 51 of 2402 manuscripts and research notes published in *RS* between 1936 and the end of 2015 focused on energy-related themes. This means that over the life of the journal, 2.12 percent of manuscripts have dealt with energy topics. This means that only one in 50 manuscripts has contained energy content, and at a rate of 4–8 manuscripts per issue, or 20–32 per volume, this means years often go by between energy-themed manuscripts.

The method was repeated for *JRSS/SRS*. This journal was initiated in 1987 by the Southern Rural Sociological Association. Between its inception and the end of 2015, it published 334 total manuscripts and research notes. Of these, 16 involved energy content, for a total percent of 4.79. One third of these manuscripts were contained in a single special issue on unconventional natural gas development. The third primarily rural sociological journal, *SR*, has published 989 English-language manuscripts since 1960.² The focus of *SR* is more European, and rural sociological interest in energy themes and topics appears even lower there than in more North

²Non-English language manuscripts were not reviewed.

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TABLE 1. ENERGY RELATED MANUSCRIPTS IN RURAL SOCIOLOGY AND RURAL-THEMED JOURNALS FROM INCEPTION THROUGH 2015.

	TOTAL ENERGY-		
	TOTAL MANUSCRIPTS	RELATED MANUSCRIPTS	% OF TOTAL
<i>Rural Sociology</i> (1936–2015)	2402	51	2.12%
<i>Sociologia Ruralis</i> (English articles) (1960–2015) . .	989	6	0.60%
<i>Southern Rural Sociology/ Journal of Rural Social Science</i> (1987–2015) . . .	334	16	4.79%
Rural sociology journals . .	3725	73	1.98%
<i>Journal of Rural Studies</i> (1985–2015)	1211	15	1.23%
<i>Society and Natural Resources</i> (1988–2015)	1535	51	3.32%
<i>Journal of Rural and Community Development</i> (2005–2015)	257	16	6.22%
Resource and rural studies journals	3003	82	2.73%
TOTAL	6728	154	2.29%

American oriented journals. Only six energy-themed, English-language pieces appeared in *SR*, yielding a percent of 0.60.

It seemed particularly appropriate to include *SNR* in this review as this journal's founders, Rabel Burdge and Don Field, "twigged" from *RS* in large part due to interest in developing an alternate publishing venue for sociological and other social science work related to natural resource issues. Coincidentally, *SNR* published the same number (51) of energy-related pieces as *RS* in 50 fewer years of publication and 967 fewer manuscripts. There were 1535 total manuscripts published in *SNR* since 1988. Fifty-one energy themed articles computes to 3.32 percent of its contributions containing energy-related content. Ten percent of the journal's articles in the first year were energy related, but this pace trailed off rapidly.

The *JRS* has a more European focus and is also frequently contributed to by non-sociologist social scientists (geographers, economists, planners). *JRS* began just a few years before *SNR*, but has slightly fewer manuscripts with 1211 in total.

JRS has published 15 energy-related manuscripts that compute to 1.23 percent energy-related content. Finally, the most recently initiated journal, *JRCD*, boasts the highest energy-related content at 6.22 percent, (16 of 257 manuscripts) but similar to *JRSS/SRS* much of this came in one special issue on unconventional oil and gas development. In total, these six rural-themed journals have delivered 6728 manuscripts, research notes and other substantive contributions since their inception. Of these, in total there have been 154 energy-related pieces, leading to an overall percent of 2.29. Summarizing 154 contributions in a journal-length manuscript is impossible. The following review highlights some trends and describes the diversity of energy manuscripts.

In the first four decades of *RS* there was scant interest in energy. From its inception in 1936 into the 1970s, there was less than one energy-related manuscript per decade. The focus of these ranged from effects of the automobile (Trewartha 1941), to an odd manuscript that addressed the energy requirements of society and eugenics (Whetten 1939). An intriguing piece from the early decades is by Rose (1940), an employee of the Rural Electrification Administration. Much in the spirit of this manuscript, Rose listed a long series of sociologically interesting questions related to rural electrification and issued an invitation to rural sociologists to take up several research challenges regarding the impact of electrification on traditional rural society. Warner's presidential address (1974) offered a particularly interesting piece that touched on energy. His broad and insightful manuscript focused on the forces transforming rural society. He wrote generally about the decline of agriculture and the concomitant change in rural society. He considered that energy features prominently in that change and indeed I am echoing that assertion in this manuscript.

The latter part of the 1970s and 1980s featured a significant increase in interest in energy. There was a vast array of energy boomtown pieces. The Energy Boomtown literature comprises 18 manuscripts, or 38 percent of the total energy-themed work in *RS*. The term "boomtown" refers to rapid growth in the population of generally isolated communities through the development of one or two related sectors. Two individuals essentially had franchises that constituted an oligopoly in this theme. Of the 18 boomtown-related pieces, Rick Krannich authored or coauthored nine, and Bill Freudenburg had involvement in six. Stated differently, 83 percent of the energy boomtown literature in *RS* involved these two scholars. While it is laudable that these two individuals carried the bulk of the load in creating a rural sociology of energy, it also underscores the point that too few rural sociologists have taken an interest in the subject.

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While not all boomtowns were energy related, and not all this literature focused on the western United States, the literature in *RS* focused largely on that region and most references to rapid growth involved hydrocarbon development projects in the West. Exceptions include Seydlitz et al. (1993) who examined social change in the Gulf Coast within communities that service offshore oil extraction activities. Gramling and Freudenburg (1990) also examined the Gulf Coast energy boom. Another exception to the western focus was Krannich's (1981) first manuscript on energy in *RS* that dealt with social change in 104 communities east of the Mississippi River that had power plants of more than 300 Megawatts (MW) constructed after 1950.

The 1990s saw a total of nine energy-related manuscripts in *RS*, four of which continued in the Boomtown vein. Others manuscripts from the decade included treatments of mining and mining dependence (including but not exclusively energy-related mining) (Freudenburg and Frickel 1994; Nord and Luloff 1993); radioactive waste facility siting (Albrecht, Amey and Amir 1996; Krannich and Albrecht 1995); and one manuscript on household energy consumption in an amenity/retirement area (Fuguitt, Heberlein, and Rathburn 1991).

The subject matter of the *RS* energy-related manuscripts in the 21st Century continued to be diverse. Stedman, Parkins and Beckley (2004) examined resource dependence (including energy dependence) on the national scale in Canada. There has been a cluster of manuscripts that treat biofuel and ethanol plants, again a theme at the intersection of energy and agriculture, though in this instance energy has a more prominent role (Bain, Prokos, and Liu 2012; Carolan 2009; Holleman 2012; Tigges and Noble 2011). A text by Bell and York (2010) examines ideology and community identity in coal country. In recent editions of *RS*, some attention has focused on more recent forms of energy production in rural space, namely bioenergy (Eaton, Gasteyer, and Busch 2014), unconventional natural gas production (Schafft, Borlu, and Glenna 2013), and wind development (Hamilton et al. 2014; Jacquet and Stedman 2013).

An interesting anecdote to the data from *RS* is the fact that so many leading lights of the discipline participated in energy-related work at some point in their career. No fewer than seven RSS presidents contributed energy-related work to *RS* (Keith Warner, Glen Fuguitt David Brown, Fred Buttel, Bill Freudenburg, Lou Swanson, and Rick Krannich) Similarly, eight winners of the Natural Resources Research Interest Group Merit Award Winners (Fred Buttel, Riley Dunlap, Tom Heberlein, Bill Freudenburg, Rick Krannich, Bob Gramling, Shirley Laska and Rich Stedman) also contributed energy manuscripts to the journal during their careers.

Despite the positive example of these luminaries in the field, interest in energy by members of the RSS remains sporadic.

JRSS/SRS has featured 16 energy manuscripts in its 28-year combined history. Six of these were in a special issue devoted to unconventional oil and shale gas organized by Gene Theodori and published in 2011 (Theodori 2011). Three of the manuscripts in the special issue dealt with public perceptions of shale gas development (Brasier et al. 2011; Theodori et al. 2011; Wynveen 2011). Jacquet and Stedman (2011) examined a social movement and collective bargaining dimension to shale gas development in New York State. Adua and Sharp (2011) examined energy consumption in a rural context. Five additional manuscripts in *JRSS/SRS* have dealt with various dimensions of unconventional natural gas and oil and the associated impacts on rural people and places and Theodori has been involved with fully one third of *JRSS/SRS*'s energy-related manuscripts. The remainder of manuscripts has included topics such as a disaster involving a coal mine impoundment (McSpirit, Hardesty and Welch 2002, McSpirit et al. 2007), biofuels (Dyer, Singh, and Bailey 2013), and a piece on conventional oil and gas contributions to municipal finances (Mencken and Flynn 2004). More than any other journal, *JRSS/SRS*'s energy content often focuses on oil and natural gas development.

SR's six manuscripts featuring energy topics range from wind in Wales (Woods 2003), geothermal energy in Greece (Kousis 1993), biofuels and biomass (Bell and Osti 2012; Mol 2007, 2014), and a piece about energy's role in counter-urbanization in Denmark (Herslund 2012). Clearly, concern with energy has come late to *SR*. Four of the pieces have been in the last decade and there were no energy-related pieces for the first three decades of the journal's existence.

As mentioned previously, *SNR* was established in 1988 by Rabel Burdge and Don Field, two rural sociologists interested in providing a publication outlet for a wider diversity of natural resource sociology and social science manuscripts. They achieved that goal. *SNR* has grown dramatically over the years but energy contributions to the journal have been infrequent compared with articles related to forests (community management, human dimensions of fire), biodiversity, watershed management and governance, environmentalism overall, social aspects of environmental impacts, and "extractive industries," but often articles about the latter excluded discussion of energy related resources.

It is impossible to review all 51 manuscripts in *SNR* in the space available, but suffice it to say that the scope of articles is broad, ranging from general pieces on energy and sustainability (Freudenburg and Gramling 1998; Seydlitz, Jenkins, and

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Hampton 1995), to quite specific topics, such as coal miner health (Madsen et al. 1998), youth outmigration in Iceland (Seyfrit, Bjarnason, and Olafsson 2010), and landscape effects of wind energy (Pasqualetti 2001). Several energy manuscripts in *SNR* deal with oil or gas extraction and their social, health and environmental impacts, but other energy topics ranging from dams, to uranium mining to biofuels are also treated. Energy content in *SNR* has been consistent throughout the years, but despite its mandate to look more broadly at natural resources, the record regarding energy content is modest and comparable with the other journals reviewed.

The sixteen energy related manuscripts in the *JRS* do not have much thematic, geographical, or theoretical coherence. *JRS* does appear to have a more theoretical bent than other journals, with energy-themed articles on Habermasian discourse analysis (Fast 2013) and ecological modernization as it relates to biomass energy (Huttunen 2009), but many articles appear similar in style many to the other journals, examining economic change associated with energy-related developments (Mayer and Greenberg 2000; Measham and Fleming 2014). As with the other journals reviewed, the energy topics covered span a wide geography, from Brazil to China to Finland and the United States, and the energy sources covered include ethanol, wind farms, wood energy, and oil.

The *JRCD* has been published only ten years, but has featured sixteen manuscripts in that time. It has the highest percentage of energy content of all the journals, in fact more than double most others, but similar to *JRSS/SRS* much of this impact was through a single special issue on unconventional oil and gas published in 2014. The articles in the special issues spanned the globe, dealing with oil and gas development issues in Greenland (Hansen 2014), Norway, (Eikeland 2014), Russia (Öfner 2014), Canada (Ensign, Giles, and Oncescu 2014; Ryser et al. 2014), Australia (Chapman et al. 2014; Taylor and Carson 2014), and the United States (Jacquet and Kay 2014). In total, eleven of the sixteen energy articles have been published in the last four years.

Missed Opportunities in the Past

The following section provides two examples of lines of enquiry related to energy that curiously were not pursued by rural sociologists despite their dramatic effects on rural life, landscapes and culture. These two historical rural modernization events, the Tennessee Valley Authority and rural electrification are meant to be exemplary, not exhaustive. There are additional examples of energy-related development that led to changes in rural culture, rural landscapes and rural

social relations. These developments had both positive and negative effects, which depends upon one's perspective. These all contributed to modernization and therefore the diminishment of "traditional" rural culture and agrarianism, but as agriculture declined as an occupational option for many, energy-related employment undoubtedly was a backstop against rural depopulation for some regions. I speculate about why the TVA and rural electrification were given such scant attention despite their dramatic influence on rural life and rural space, but this should not be construed as a full or well-documented analysis. In the spirit of this paper, I put these examples out more as questions for reflection and as potential topics for more detailed research and analysis.

Four years before the founding of the Rural Sociological Society, the federal government of the United States enacted legislation commissioning the Tennessee Valley Authority. This example of "high modernism" had the explicit mandate to eradicate rural poverty, modernize agriculture, and provide cheap electricity to the rural populace of an 80,000 square mile region spread across seven south eastern states (Kenney and Secord 2010). This was one of the largest and most comprehensive regional, geographically bounded institutional experiments ever conducted in North America. The TVA had its roots in the Great Depression and its concomitant unique rural problems. Indeed, this was the same era in which rural sociology was born as a discipline. The TVA, while perceived by most as an engineering project, was just as much a social project built in response to crushing poverty and poor living conditions in Appalachia. The construction and maintenance of energy production facilities, especially but not exclusively hydroelectric facilities, was the cornerstone of the organization, which was technically constituted as a corporation, owned by the federal government. Between 1933 and 2013, the TVA built 29 hydroelectric dams, 11 coal fired power plants, six nuclear reactors in three different facilities, and nine natural gas turbine plants (Tennessee Valley Authority 2014). Coincidentally, if one could map the geographic location of professional rural sociologists over the last eight decades, I imagine the land mass that constitutes the TVA's area is close to the epicenter of the greatest concentration of rural sociological expertise in North America, so again, the lack of attention to this phenomenon is perplexing. The TVA, its activities and impact, was in clear sight, but it remained out of mind for most of rural sociologists in the region.

Clearly, the TVA and its activities had profound effects on rural life, yet a search for TVA or Tennessee Valley Authority in rural sociology journals yielded few references (O'Neill 2002). Massive social transformation was a key part of the

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TVA's expressed mandate, and yet it, and its attendant social consequences, has received scant attention from rural sociologists. Other notable social scientists and commentators (but none of whom self-identify as rural sociologists) have delved deeply and quite famously into the distinctive rural social problems of this energy landscape. Selznik's *TVA and the Grassroots* (1949), Caudill's, *Night Comes to the Cumberlands* (1962), and Gaventa's *Power and Powerlessness* (1980) all document various sociological dimensions of this region and attempts to bring it out of poverty through energy development.

While the TVA was all about producing electrical power, in other words the supply side, just as important was the consumption of electrical energy or the demand side. The Rural Electrification Administration (REA) was another massive federal project with New Deal, modernist roots. It also had a profound impact on rural landscapes and rural people in the United States. Constituted in 1935, around the same time as RSS and the TVA, the REA achieved the amazing result of electrifying nearly all U.S. farm households in the 18-year period between its inception and 1953. This was starting from a point where only 11 percent of farm households had electricity in 1935 (Davis 1986). Clearly, this development had massive implications for rural life, livelihoods and landscapes, yet no one seemed to take up Rose's (1940) challenge to subject this phenomenon to in-depth sociological scrutiny. Did the REA lead to better lives for rural people? If so, in what dimensions? Did it hasten the modernization and hence the concentration and industrialization of agriculture? Very likely, but exactly how and where, and in which sectors first, with what consequences? Rural sociologists did not seem interested in finding answers to these questions.

Rural electrification in Canada also required state intervention, state monopolies, and ultimately massive investments in large scale hydroelectric projects and transmission infrastructure. These projects had profound effects on rural space, but also allowed rural residents to experience the benefits of household electricity. In my own region, rural electrification required massive expropriation of land in the 1960s and a "hearts and minds" campaign by government and utility designed to get a "backward" rural region on the modernization bandwagon (Dickison 2006; Kenney and Secord 2010).

Possible Reasons for Rural Sociology's Energy Blind Spot

There are several possible explanations for why the rural sociological gaze has rarely turned to energy during most of its 80-year history. I have a few hypotheses but I do not resolve them here. Each would require a manuscript length treatment.

They could be resolved through diverse methodological approaches; through archival research, through research among the discipline itself as to individual and institutional reasons why rural sociological scholars have made the choices of subject that they have. Since the inception of rural sociology there has been an “energy” elephant in the room, but one that people cannot perceive or choose not to acknowledge.

It is possible that rural sociology’s neglect of energy issues occurred precisely because so much of energy development was part of a modernist project often explicitly meant to transform society and to bring “backward” rural society in line with mainstream urban society. While many rural sociologists wanted rural places to modernize and enjoy the benefits of technological progress (see adoption-diffusion), they often wanted rural residents to be able to do this on their own terms with minimal impacts on what many scholars viewed as the virtues of rural culture. As often happens, however, modernizing and industrializing rural society came with costs as well as benefits. Given the discipline’s origins and focus on agrarian life, the omission of energy development in rural areas is somewhat understandable. The obvious exception, of course, is with the healthy volume of boomtown studies, many in communities experiencing energy-related developments. Rural sociologists seemed less interested in understanding how nuclear or civil engineers deployed to rural areas to build plants and dams were coping with their new surroundings.

Another explanation for the bias of rural sociologists toward agriculture over other sectors is the simple fact of their common institutional locations in Colleges of Agriculture. Obviously, not all rural sociologists in North America were or are housed in such institutions, but the majority have been, especially in the early days of the discipline. As such, rural sociologists are answerable to deans and assessment committees from non-social science disciplines whose prime concern is with agriculture. Even as farm population has declined, the preoccupation with agriculture has remained in the discipline. In 1900, farmers represented 41 percent of the labor force in the United States, but by 1945, this had declined to 16 percent. By 2001, fewer than 2 percent of the population in the United States lived on farms (Dmitri et al. 2005). In Canada, 1931 was the first year the federal census took a count of the farm population and 32 percent of the population lived on farms. Today, less than 2 percent of Canadians reside on farms (Dewar et al. 2009). This precipitous drop in the farm population is partly why the Rural Sociological Society was created in the first place, but the discipline has remained focused on farmers and agriculture and the transition to corporate domination of farming as the farm population has been hollowed out. Examining this hypothesis might be difficult, but

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perhaps could consist of ethnographic research of the community of rural sociologists itself. Did researchers “follow the money” which were often in agricultural themes? Are there reams of unfunded but well-conceived energy research proposals in dusty archives? Did rural sociologists lack the necessary institutional connections with key institutions such as the TVA, the U.S. Department of Energy, or the Federal Department of Transportation or similar federal departments in Canada?

As farm population declined but rural populations remained stable or simply grew at a slower rate than urban populations, the discipline struggled with the question of what constitutes “rural” (Willits, Bealer, and Timbers 1990). In the early 1980s, Miller and Luloff (1981) asked the rhetorical question, “Who is rural?” They argue that rurality has traditionally been defined by a constellation of three elements: ecology (low density population distribution), occupations (in particular economic sectors, but predominantly agriculture), and a sociocultural dimension that encompasses distinct rural values, behaviors, or attitudes that contrast consistently with urban values, behaviors and attitudes.

The discipline’s preoccupation with these three elements of rurality also partly explain the distinct lack of attention to sociological issues surrounding the development, transport and use of energy in rural areas. Making this case with rural occupations is easiest. As described above, farming is an obvious rural occupation. With a few exceptions (Kaufman 1949; Landis 1938), forest workers, miners and other non-farm rural occupational groups were rarely treated. However, the occupations that made up the workforce of the modernizing sectors of energy development—utility linesmen, nuclear engineers, hydroelectric engineers, geologists, surveyors, uranium miners, drill rig operators, thumper truck drivers and heavy equipment operators—have not been viewed as distinctly rural occupations. As such, rural sociologists have not treated these occupation groups as “traditional” clients in need of our assistance. Rural sociologists would not likely identify rural bulldozer operators, welders, or utility linesmen as rural occupational groups whose problems or issues might be studied and enhanced by rural sociological scholarship. Yet these types of occupations allowed people to leave farming (or farm part-time) while managing to remain in rural areas.

One empirical challenge in measuring the contributions of energy sectors to rural employment is the fact that individuals that work in service industries such as trucking, welding, surveying, and so forth may derive anywhere from zero to 100 percent of their work to the energy sector in a given year. However, the mix of work for such individuals across sectors may be highly variable year to year.

Nevertheless, some energy-based employment may be critical for allowing them to remain rural residents.

Miller and Luloff (1981) identified low population density as another characteristic strongly identified with rural. Rural spaces that host energy developments, particularly large ones such as nuclear installations, or coal or uranium mines (with attendant large unionized labor forces), are seen by many as pockets of modernity and urbanism in the wider rural landscape.

Beckley (1996) describes just such a pocket of modernist social relations in a rural locale in a pulp and paper mill town in Maine. Despite being surrounded by mile upon mile of virtually uninhabited forest, the community of Rumford/Mexico has more stereotypically “urban” social relations (unions and a multinational forest products company, ethnic diversity and social stratification along ethnic lines), urban trappings (grand architecture and planned subdivisions), and initially, urban aspirations (the hope that this industrial facility would lead to further industrial development). All this was caused by a clever industrialist who saw the potential of the local hydro-power resource and a strategic location relative to large markets in the north eastern U.S. Ultimately this led to a strange but fascinating urban/rural hybrid that was even more interesting for the urban and rural stereotypes that it challenges.

The association of energy development (and other “industrial” rural activities) with modernity may be the most important reason that rural sociologists have not embraced these sectors and activities as areas of scholarship. Many rural sociologists view their work as not only attempting to understand, but also supporting traditional rural culture. Again, this has been a concern and mandate of rural sociology from its inception, even as rural society itself transforms and evolves. It has been concerned with people, sectors, communities, and activities that are distinctly rural. Modernization through energy development and the distinctly industrial nature of many energy activities are view by some as direct threats to rural institutions and activities. This is precisely why we should have paid closer attention to them historically and why we should pay more attention to them in future rural scholarship.

An Invitation: A Potential Research Program for a Rural Sociology of Energy

While some analysis of historical inattention to energy issues by the discipline would be interesting, the real potential for rural sociology lies in paying greater attention to energy issues in rural North America going forward. This final section is intended to offer some ideas and suggestions about what that scholarship might

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look like. My argument is for subject area focus, not any particular research tradition. All the trappings of our globalized socioeconomic political system are built on the exploitation of energy commodities and the initial stages of that exploitation frequently occurs in rural space. Our current society continues to run on fossil fuel, but we also have nuclear power, hydropower, and increasingly alternative energy such as wind, solar, geothermal, tidal power, and bio-energy. These energy commodities do one of two things: They heat or cool space and they “make things go.” That is, they power devices to move or do work, such as cars, trains, electric motors, computers, appliances, industrial machines, and so forth. That is all, full stop, end of story. Yet by converting energy into useful “work,” we have built fantastically complex health care systems, food growing systems replete with irrigation, synthesized nutrients and biological and chemical pest controls, mechanized equipment, and concomitant huge yields with minimal human labor requirements. We have also created massive transportation systems, information technology systems, and a military-industrial complex.

The manner in which we develop and deploy energy resources is therefore important and worth scholarly scrutiny. The particulars of the energy system—who owns it, who controls it, who benefits from it, who is disproportionately exposed to the waste and pollution, who decides what resources are used and when and where, the public’s attitudes, values, norms, and behavior regarding energy should be examined closely and routinely. While I believe that our parent discipline of sociology should also consider energy more thoroughly, rural sociologists are uniquely positioned to examine the “front end” or supply side of the energy system. We are not uniquely positioned because we have different theories or research methods than other sociologists, but because we have experience with rural places, rural social dynamics, rural culture and institutions. We understand unique ways in which power relations, resource management and stewardship, poverty, policy, and demography have effects on rural life. Again, this invitation is not theoretically or methodologically discrete. I believe that we should bring all our theories and all of our social science tool kit to bear on the issue of energy effects on rural land and life. Below I list just a few areas that could benefit from rural sociological analyses.

Local Impacts, Social Impacts

Local social, economic and environmental impacts, including analyses of the real or perceived benefits, costs and risks associated with energy development is where rural sociology and energy issues have intersected the most in the past. Studies in

this vein have decreased from the heyday of the 1980s, but I believe this theme is about to see a resurgence. The 1980s work was heavily focused on the western U.S. and was primarily focused on fossil fuel development. The boomtown phenomenon and the attendant sociological questions are still relevant. However, they are now also relevant for tar sand communities in Alberta, for communities hosting large wind installations in Iowa, Wyoming, and California, for hydrological fracking in places as distant as North Dakota, Texas, British Columbia, New Brunswick, Pennsylvania, and Poland.

Research topics under this potential theme are standard fare in community development research. What sort of employment will energy development bring in a construction or maintenance phase? How well are local available skills matched with industry needs? Will energy development reduce poverty to a meaningful degree, or will it bring a host of new social problems such as drugs, transience, sex trade and sexually transmitted disease, or other health problems related to air and water quality, and more stress (Cleary 2012)? Many of these questions may hinge upon employment numbers, the pace of development, the longevity of the employment opportunities, and the degree to which local versus imported labor fills the available jobs. Pre-development social impact studies are in order in such situations, as well as post-development analyses to determine the degree to which social impact assessments were accurate. Work in this vein may be informed by the theoretical traditions of Durkheim, Tönnies, Simmel and others who focus on social pathologies, disruption, and the ability of society or groups within society to cope effectively with change. However, social impact work does not have strict theoretical allegiances, so work in any theory tradition could explore this area.

Energy and Power

Examination of the exercise of power and the uneven distributional effects of energy development is another fruitful line of enquiry. Work in the tradition of Gaventa (1980) could inform such an approach. This theme includes narratives and numbers regarding who wins and loses, who reaps the financial benefits, and who bears the financial and environmental costs. It also describes how power is exercised through the system. It could treat ideologies of development, progress and growth (as with Gaventa). Neo-marxist and Weberian traditions in rural sociology often examine the levers of power, regulatory frameworks, institutional behavior of the regulators and regulated, and the “state building” behavior of state actors (Scott 1998).

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Examining the social political domains of energy development and energy transport across rural space will likely reveal some very unbalanced power relationships. Rural residents are often asked to make sacrifices for “the greater good” (read urban majorities), giving up lands for reservoirs for hydropower (Dickison 2006), as well as for pipelines or transmission corridors, removal of mountains to access coal, creation of mines for uranium (Malin 2015), and bearing the risks associated with hosting nuclear, wind, and hydro generation facilities. Whereas past sociological work examined how the pressure was brought to bear by large companies on small communities in sectors such as forestry (Beckley 1996) and mining (Landis 1938), these enterprises pale in comparison to the size and scope of many multinational energy companies or state-owned electrical utility monopolies.

Besides the macro-politics of energy development, the micro-politics of who wins and who loses locally can be rich sociological fodder, particularly in cases that involve complex mineral rights, lease regimes for well heads or wind turbine locations, siting local ethanol or bioenergy facilities, etc. Are normal “growth machine” politics at play with rural municipal or county leaders, or does energy development bring some unique attributes (Molotch 1976)? Are there opportunities for municipal energy generation, or for local rural cooperatives to play a role? If wind farms and biomass district heating plants are locally owned and operated, do rural residents hosting these facilities view them more favorably? In what ways do future energy developments strengthen community cohesion and enhance community capacity and in what ways do they decrease prospects in rural places?

Financial windfalls from energy royalties or lease rights can lead to radical local redistributions of wealth and thus to social disruption among groups that formerly were viewed as peers. This phenomenon was famously fictionalized in *The Beverly Hillbillies*, perhaps not the kindest depiction of rural folk making the most of their newfound energy wealth. Nevertheless, examining technologies such as hydrological fracking, that potentially place significant benefits into a few hands, but that may adversely affect many rural residents, could be a fruitful line of enquiry.

Rural sociologists might productively turn their attention to policy analyses that document the complex process of creating and administering energy royalty and regulatory regimes. Mining legislation in many jurisdictions is often more than one hundred years old, and may not align well with state/provincial or federal Clean Water Acts. Since many energy development issues involve state or provincial level policy, and sometimes national and international policy as well (Keystone XL Pipeline), examining whether rural society has a distinct voice in

such policy debates would be useful. Is there a unique rural perspective on these issues? Are rural people able to exert any meaningful influence? Or do urban interests, external capital and other macro-social forces consistently overwhelm rural interests and perspectives in how energy development plays out in rural space?

Rural Landscapes and Sense of Place

Rural residents have unique relationships to their land and to their communities. Historically, the pages of rural journals have seen debates over the degree to which *gemeinschaft* social relations are more prevalent in rural society than urban. As well, issues of land stewardship, the meaning of land ownership, and conservation behavior have won space in rural journals. As some rural spaces become industrialized through energy development, exploring how energy development affects people's perception of rural landscapes would be worthwhile, their own relationship to their land and to their community. Sense of place research, including community attachment work, has had a minor place in *RS* (Brown 1993; Goudy 1990; Grieder and Garkovich 1994; Smith, Anderson, and Moore 2012), but considerably more traction in journals such as *SNR*. There is still much potential in this vein for rich narratives to examine how mountaintop removal, large scale wind farms, reservoirs, mines and even mostly invisible infrastructure such as pipelines have challenged people's notions of place and altered place meanings and place attachments.

Attitudes, Values, Norms and Behavior

Scholarship on attitudes, values, norms and behavior is another traditional area of rural sociologists that could contribute to a rural sociology of energy. In rural contexts, this work would be appropriate to energy sources and technologies of production of energy commodities. In the past rural sociologists such as Tom Heberlein and Stan Black have also tackled demand side issues in energy use (Black 1978; Heberlein 2012). The siting of large scale wind installations, unconventional or "fracked" natural gas well heads, the routing of pipelines, and conventional fossil fuel production all disproportionately affect rural people and transform rural space. So, are rural attitudes toward these energy phenomena different? What are their views about the potential benefits (jobs, income, and economic growth) versus the potential costs (boom growth, landscape transformation, loss of control of resources, disruptions to existing lifestyles)? Work of this nature has been common

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in the past (Jacquet and Stedman 2013; Stout-Weigand and Trent 1983; Thompson and Blevins 1983).

As energy technologies evolve, and as both development successes and failures or accidents occur, attitudes may be alternately variable or fixed. For example, in recent years, nuclear power was enjoying a bit of a “green makeover” of its image due to the specter of climate change. Then the accident in Fukushima Japan occurred and entire countries (e.g., Germany and initially Japan) dramatically changed their nuclear policies. How much attitude change occurs toward an energy source commodity or technology because of accidents (Prati and Zani 2013)? Do similar rapid shifts in attitudes occur toward energy sources or modes of transportation of energy sources due to events such as rail accidents (such as Lac Megantic, Quebec in the summer of 2013), pipelines, or offshore oil facilities, such as the widely covered Deepwater Horizon accident in 2010 (Freudenburg and Gramling 2011)?

These are merely a few suggested areas of research. Rural sociologists with primary specialties in areas such as gender, migration, race, occupations, class, agriculture, social capital, and other topics could find produce interest analyses by combining these areas with an examination of energy issues.

Conclusion: Imagining a Rural Sociology of Energy

By design, this manuscript asks more questions than it answers. However, reflection on disciplinary direction and opportunities, I believe, constitute important contributions to the literature. Energy issues are pervasive but often invisible in our society. We turn on lights and commute to work in gasoline-powered vehicles with little thought to the effects these small acts may have for rural places and people. I have made a case that there was a tremendous array of sociological themes and many potential energy institutions, sectors and sites all over Canada and the United States since the inception of the RSS in 1937 that could have led to vibrant and voluminous sociological scholarship. Yet, the specific examples of modernization through energy development that I describe and industrialization of rural society and rural space overall were largely ignored by the very scholars interested in the social dynamics with rural communities and regions. The one exception was a focus on energy boomtowns in the Western United States from the 1970s to the 1990s.

My hope is that this paper will be read as an invitation and analysis and not a harsh critique of our disciplinary sins of omission. My speculation on why rural sociology has been silent on energy compared with other issues is just that, speculation. Space constraints do not allow me to fully research the points here.

This manuscript is intended to be a conversation starter, and possibly an inspiration for some to begin to look to energy themes for their future empirical work. There are many young scholars in rural sociology currently taking on the energy challenge, and several that have been examining energy sociology all along, but only occasionally choosing *RS*, *JRSS/SRS* or *SR* as their publication venue. I also hope that future editors and reviewers of these primarily rural sociological journals are willing to make space for energy related work. The purpose of my historical examples of the TVA and rural electrification is primarily to show how much energy is a critical issue that affects rural life. In conducting the overview of energy in rural studies journals, my intent is to be provocative but not disrespectful. I do not suggest that focusing on areas of scholarship that have received the bulk of attention of rural sociologists was wrong, historically. While I find it curious that our rural sociological imaginations never have consistently focused on energy issues, there are legitimate and reasonable historical reasons for this. I prefer to look forward, I believe there is a tremendous opportunity to conduct vital and engaging scholarship on energy issues. Through such a body of work, I believe that there are opportunities to shape policies and practices related to energy and in so doing provide service to rural people. Such a body of scholarship could also have profound impacts on rural landscapes and livelihoods. In my own province, our Chief Medical Officer of Health is using research of rural sociological colleagues to examine health effects of proposed shale gas development (Cleary 2012).

New technologies and opportunities, such as biomass district heating for rural schools, rooftop solar or solar farms, local and cooperatively-owned wind installations, and micro-hydro development could provide energy independence, employment and revenue for rural communities. On the other hand, future fossil fuel development dominated by multinational capital and that contributes to global warming may provide little long term benefits to rural places and may leave problematic environmental legacies. There are researchable hypotheses and research questions here. Clearly, not all renewable resource development is “good,” nor are renewables necessarily more likely to be cooperatively or locally owned than coal plants or pipelines. Similarly, not all fossil fuel development is “bad,” nor is it written that this sort of development needs to occur through a boom/bust dynamic, or be dominated by external capital (see Norway’s state management of its domestic petroleum resources for the public good). The point is, which energy sources are tapped, how these are turned into commodities, and what institutions and social structures are at play in this have profound implications for rural society.

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Three quarters of a century ago, Rose (1940) made an invitation to rural sociologists to examine rural electrification. A quarter century later, Warner (1974) suggested that energy issues were having a powerful transformation effect on rural society. Sadly, few rural sociologists responded to their challenges to take a closer look at energy issues in rural places. Many of those that did so chose to publish (or were forced to publish) in journals outside the traditional rural themed journals. No doubt there is interesting scholarship regarding rural places and issues in *Energy Policy* and new journals such as *Energy Research and Social Science* and *Environmental Sociology*. My hope is that scholars, editors and reviewers of the six traditional rural themed journals reviewed here will be part of a movement to repatriate rural energy scholarship and to consciously encourage a rural sociology of energy.

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