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Research article

Use and abuse of the planet in non-rich regions: histories of fracking and windmills in a more than human geographical perspective

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Abstract: Remote and marginal areas with scarce and vulnerable populations are "comfortable" settings and suitable places for the development of new extractive activities for energy production. Fracking and modern windmills are often controversial activities in marginal areas for native and local populations, with varying political positions from local elites. The new scalar policies associated with the energy project introduce some of the resistance strategies in the form of more than human geographies or hybrid spatial relationships that characterize recent human geography. This paper explores and suggests possible ways of integrating local interests with regional or national policies based on the "health" of marginal populations, marginal rather than human materiality's and marginal more-than-human.

1. Introduction

Non-human living beings usually appear under the name more-than-human geographies perspective, mainly animals. But, this name can also be extended to more-than-human materialities: landscapes and geo-heritages. The new materiality in human geography suggests that material differences in place influence social relationships. It has recently been suggested to think of a rural as more-than-human [1] that avoids non inclusive narratives of the rural environment and integrates human and non-human actors…. From this point of view research in the human actions that can alter the landscape and the geological substrate contributes to integrate the health of the planet's

geographical materiality, which constitutes the support of our lives, in our visions, concerns and socio-political and environmental actions. Green and cultural materiality is a part of our geographic identity and our place performance. Ronningen [2] suggest that the rural space have a strong focus on social issues of post productive countryside and is necessary back to a more material rural space in the context of new geographical bio-economy energy transition. As Bridge et al. [3] suggest an energy transitions is a geographical process with characteristics of the location in a topological context of relationships.

Rural areas are key geographic spaces for an adequate energy transition: they provide the necessary resources and places for the installation of renewable energy sources. An energy transition is a relevant part of a geographical global post-productivist transformation in the new territorial context of a multifunctional spatial countryside [4]. But, despite the marked relevance of rural areas for the new energy transitions, this dimension is notably underexplored in the framework of recent geographical processes of rural change and transformation [2]. Rural spaces are necessary for energy transitions and the introduction of energy transitions can drive regional and local rural dynamics. Usually the new developments of rural renewable energy expected to produce regional economic benefits. But, the new value of marginal rural places through renewable energy developments is a contested issue due to the variable local and extra local social acceptance of alternative energy sources owing to their notable demand for land and the (unequal) distribution of revenue generated. In energy production the (poor) integration of the local community in the decision-making process is a social sustainable (pre)requisite. The conflicts stem from the different identities associated with geographic or topological rurality [3,5]. The focus that supports this contribution on the new ruralities of geographic energy transitions is the social, economic and environmental impact, in a community framework of renewable energy, that produce rural (remote) places that are not rich in carbon. But, the way from extractive activities to renewable energy perspective is a remarkable drive of transition not adequately considered and explore in rural context/studies that requires a redefinition of the local community and the natural resource. The regional and local dimension is relevant in the analysis of energy transitions by integrating the structural problems of communities and their socio-cultural identities in a new space of sustainable and resistant localities and places.

The geographical comparison between wind farms and fracking as opposite faces of new energy transitions in the context of new low-carbon (rural) societies, allows us to analyze the regional contradictions in a scalar global planetary vision. In this theoretical contribution spatial rural histories on the development of new energy sources have been selected to reveal local and regional contradictions.

2. New energy rural communities in not rich places

Rural areas have usually had a passive and residual character compared to urban areas in the geographical academic literature [6], but both areas are connected by complex flows and must be considered in an integrated way, in the context of a global rural economy that includes and encompasses the remote areas [4]. The relational dimension of space acquires inclusive relevance in the rural restructuring processes as a consequence of climate change [7]. In this way, the (local) territory not is an independent spatial variable to be included in a complex network of scalar relationships and connections. "The key is to analyze the way that territorial and networked relations are combined in any particular case" [7]. In this perspective it is necessary to consider the different

narratives of rurality and the competing rationalities at local level of the management of micro processes of change [8] and their influence on the social and territorial division of power in the new energy/rural small communities. Rural communities have a capacity for adaptation in response to processes of change with differences among individuals in a plural community [9,10]. The transition towards a new energy rural community may be relevant for the adequate development of the community (rural/plural) dominated by the new dynamics of adaptation to climate change [11].

The new energy rural communities bring together participation processes of the close territorial community energy and the local community outcome. Each singular place/space and the construction of local decision making processes are very relevant to adequately specify the community benefit society of the energy project. The motivations of the community reside in local concerns and geo-economics, but key stakeholders and local elites always play a relevant role [12].

Hicks and Ison [13] introduce the concept of Community-owned Renewable Energy (CRE) to analyze the benefits and limitations of a community approach in the rural poor Australia. Along the same lines, Walker and Cass [14] had previously suggested the term community energy that combines legal, physical-environmental, decision-making process and economic aspects. The CRE combines environmental, technological and socio-political aspects that seek to introduce low carbon developments, decentralized the process and democratize the (local) governance. The CRE project intends to include the majority of local land ownership in the development of the project to expand and disseminate the community benefit and developments. For example, community acceptance of wind farms occurs when the local benefits of the new activity are displayed. In the medium and long term, CRE increase the resistance of local communities to continue in place by diversifying their socio-economic options.

In any case, it is necessary to point out that there is not a single rural identity but rather varied trajectories that reflect types of communities and local economic histories with notable influence on new energy developments. It would be possible to establish dualities between rich or transitional communities associated with rural amenities and alternative energy production projects (such as biomass) and ecotourism, while poor communities are dominated by old carbon societies or plantation economies. Between both types there would be a wide spectrum of local communities with hybrid socioeconomic and environmental bases [15]. The variable strategies of community resistance to new alternative energy projects have a long tradition in rural studies in response to the diverse structures, settings and local trajectories [16]. Phillips and Dickie [17] suggest three narratives of transition towards a low rural carbon society that can influence actions of the local communities: the calculative, the imaginative and the performative. The first suggests the possible/plausible rural futures based on the general/regional projection of past and present situations. The second points out the possible future alternatives, other scenarios regarding the present situation based on a cultural approach that integrates non-western and indigenous socio-cultural scenarios, a local and more-than human perspective dominates this narrative. Finally, the third narrative connects with the performance of everyday life that aims to examine the (rural) spatiality of climate change. These transition/non-transition narratives have effects in a new direction of rural studies in order to facilitate a transition towards low carbon rural futures, which allows negotiating the uncertainties of the social acceptance of climate change and energy as subjects and objects of mitigate/adaptive local actions. The precarious and changeable nature of a new green identity needs a permanent remake in the play between self and others [18].

The resistance and response strategies of rural communities against alternative energy implementation projects suggest a certain controversy and complexity. Studies on the NIMBY—Not In My Backyard—syndrome carried out in rural areas and small towns [19] suggest that alternative energy sources such as wind farms and others generate diverse conflicts in the community where they are established depending on a particular and unique combination of its socioeconomic, political, environmental, economic and historical conditions. In general, they suggest an unwanted or undesirable perception of new development, especially in the case of wind farms or other alternative sources of energy, due to the degradation of the rural environment. The disruption of place generated by new activities can influence the future orientation of the place and the resistance actions of the local community are intended to prevent future unfavorable changes. The community organized in a formal or informal way usually contests to decision-making processes, in order to integrate local interests to avoid displacement from land, exposure to environmental hazards and new processes of exclusion from benefit-sharing arrangements [20]. In the context of the process of development and implementation of green energies, the NIMBY syndrome has moved to the BANANA—Build Absolutely Nothing Anywhere Near Anyone—approach that aims to absolutely shield rural communities and their rural environment from any new project of energy transition to preserve its social base and traditional agricultural environment [21].

The territoriality of new energy development based on alternative energy sources determines the importance of the local population for their implementation. But the local population does not stop being currently a fluid linked to the mobility of people, which suggests a notable question in populations affected by gentrification processes, which is the local population? The population that performs traditional activities is a very restrictive criterion. On the other hand, the regional/national support of actors and social agents for renewable energies makes any kind of local opposition difficult. Consequently, community resistance is concentrated in unique new energy developments where local and extra-local interests converge. For this reason some academic orientations suggest a new open conception of the (local) community [22], which adequately brings together and integrates local and counter-local interests. This integration of the plural local and extra-local interests has a porous and changeable character in different places both in the global north and the global south. The strategies of integration, resistance and response have infinite nuances at place level.

3. Alternative energies in rural places

The alternatives sources of energy are not always good for the more-than-human rural materialities by integrating different alternative rural scenarios. Wind farms and fracking are two opposite faces of energy politics in rural and marginal areas in the context of new (rural) low carbon societies (Table 1). Social concerns about climate change and national and global energy security generate two contradictory paths in energy supply: toward unconventional fossil fuels and toward renewable energy resources [23].

The energies based on the unconventional fossils fuels suggest an exhaustive planet, not based in social-environmental justice where energy is sought by exploring and forcing the material limits of the health of the planet, once conventional extraction procedures have been squeezed out of the old fossil fuels. This new mode of extraction generates new subterranean and geological politics based on the limits of extractives activities. Wind energies suggest a green, renewable and clean future of

rural (poor and rich) areas outside the traditional dynamics of the old carbon societies. But they demand sacrifices from traditional communities in their historical and cultural rural environment.

In the context of wider social and geographical changes, remote and declining rural areas can be revitalized associated with the management of natural resources and new sources of energy [24]. Always in the context of flexible decision-making and governance processes that allow the gradual and continuous adaptation of local populations in response to the large geographic processes of social, environmental and economic change that affect poor or marginalized rural areas [25]. Poor communities have a limited capacity to direct their own destiny based on their own rural/local environment and constitute permanent spaces on the margin of global hegemonic dynamics. Alternative spaces would include new forms of identity and would be a singular element in the constitution of new energy spaces [4]. In addition, alternative energies can be an active element in the constitution of alternative geographical spaces [22] that encompasses and integrates local communities in a territorial scalar dimension from below (Table 1).

Table 1. Dimensions of fracking and wind farm in the context of rural poor places.

Fracking. Horizontal High-Volume Hydraulic Fracturing (HVHF)	Wind farm
Exhaustive planet	Renewable and green planet
Positive and negative local effect	Positive and negative local effect
Subterranean politics	Landscape politics
Local-global geographical politics	Local-global geographical politics
Contested questions	Contested questions at local level
Local and global resistance	Local resistance and place sacrifice
Local and global adaptative politics	Local adaptative politics

Source: own elaboration.

4. Fracking: the contested Horizontal High-Volume Hydraulic Fracturing (HVHF)

This extraction technology has been developed since the 1990s in rural areas, with a special predilection for remote and marginal areas. Arnold, Farrer and Holahan [26] in their study on the state of Ohio, which they adopt as an example for the whole of the United States, suggest that Horizontal High-Volume Hydraulic Fracturing (HVHF) is an energy extraction option that always generates controversy. In the case of USA, they point out that it is necessary to debate and limit the fact that the HVHF is strictly a matter of local subterranean politics due to its broad environmental and territorial impacts. But it is necessary to take into account the opinions of the community to justify the regional or state interventions that condition the decisions and strategies of the local government. In the case of local landowner's views on HVHF, the negative perception of environmental impacts is offset by the recognition of economic benefits. This opinion becomes relevant among landowners with experience in HVHF activity: their opposition to the HVHF is small while acknowledging the adverse impacts in their communities. But as Murphy, Brannstrom and Fry [27] point out in the case of the US, only a very small percentage of land ownership in new HVHF developments is in the properties of local owners. Majority control is held by large owners or corporations outside the community, which increases the risks of local community marginalization and unequal distribution of socioeconomic benefits. Haggerty and McBride [28] also point to the risks for the HVHF communities, so it is

necessary to include the local community in the decision-making processes of the HVHF developments, including local investment, adaptation and mitigation plans.

In a relatively dense rural space such as the Dutch, Kohne and Rasch [29] point to the concept of belonging-resistance to study the resistance processes in place against the shale gas extraction. Kohne and Rasch [29] suggest that HVHF energy extraction projects can cause rural communities to lose control over their local/rural environment. Each place has its specific history in the construction of a cultural landscape as a result of an agrarian society. The regular and quiet landscape is a distinctive characteristic of the Dutch rural landscape and constitutes a mobilizing element of the processes of resistance to fracking, due to the social preference of community continuity and environmental sustainability over the monetary value of resources. The sense of belonging to the place is a determining element in the response to extraction projects. But, it has also been shown that the sense of place in traditional mining communities includes or is based on the energy system and energy infrastructures [30]. These traditional mining communities are more open to change to energy transition and the incorporation of HVHF. But, they also show signs of sense of loss, precarity and emotional vulnerability that can generate a sense of second-class rural citizens [31].

In this perspective other research has suggested that opposition to the HVHF is based on the maintenance of the rural lifestyle and the characteristics of the rural place associated with the natural and particular beauty of the (rural) site [32]. In any case, the same research points off those arguments for and against the HVHF are always used to ensure the prosperity of the rural community. Prosperity based on signs of traditional rural identity or an identity based on processes of socioeconomic change. Discourses on mining and HVHF can contribute to marginalize the rural, remote and indigenous in the global North in the context of "other geographies" [33], as a traditional and fixed space that is not open to change and the innovation. In this perspective, the discourse of the anti-fracking movement can contribute to devalue rural areas—compared to urban ones—and contribute to the process of marginalization of vulnerable rural populations [34].

The duality of economic benefits and environmental costs would not always be clear. Mayer, Olson-Hazboun and Malin [35] suggest that the economic benefits of the new HVHF developments would not be explicit and sustained over time. Communities that specialize in natural-resource-dependence limit other possibilities and types of economic development. Furthermore, HVHF projects are not transferred to the general socio-economic well-being of the population and the number of new jobs is limited and, in many cases, they are qualified professionals with no previous relationship with the rural community that originate new and accelerated processes of social gentrification. The local economic effects are not clear and large [36] but socially selective. In the heterogeneous social context of rural communities, the HVHF contribute to marginalize marginalized groups [37]. Furthermore, these alternative energy projects do not contribute to the maintenance of local basic services [38]. In this sense, Schafft et al. [39] suggest that in the HVHF implantation areas the local population perceives economic gains; but also an increase in inequality, the vulnerability of community members and a "stress" of local infrastructures and services due to the increase in users. HVHF projects would require a period of adaptation to the change generated by the energy transition.

Especially in the context of remote rural areas of Australia, the concept of "boomtown" has been used to define the remarkable growth of remote small communities with few opportunities for economic development [31]. The very rapid growth in a short period of time of the local community dismantles the previous socio-economic and cultural structures and alters the traditional rural-agrarian

landscape. The new local processes of gentrification and economic growth associated with the energy transition may not be sustained over time and put pressure on the reduced local services and infrastructures. In any case, the binary vision HVHF and jobs or not would not be clear and it is always possible to imagine alternative rural futures for the health of the planet and the local communities. The implementation of HVHF technologies are subject to multiple scales of relational political ecologies that generate new energy landscapes of power, based on the combination of four elements: material-(geo)heritage, cultural politics, technological and ethical [40]. The geo-material refers to the installation of power infrastructures and the places of consumption and distribution that generate and increase territorial inequalities. Cultural politics suggest small-scale preferences, self-sufficiency and energy independence based on other alternative models. The technological refers to the material independence and political sovereignty of the peripheral areas with respect to the urbanized areas, and finally the ethical places emphasis on the localized ethical cosmologies based on the lifestyle of the small place [40].

5.   Windmills …. Wind farm… and a more than human wind

Renewable and alternative energies have an optimal place for their development in rural areas, but their implementation has direct effects on the environment, the economy and the local society. Wind energy has been a popular topic in rural and environmental geographic studies since the 1990s and has been identified as a driver of rural diversification processes [21]. Woods [41] in a seminal paper places wind farms in the variables relationships between nature, (rural) environment and rurality. From the perspective of moral geographies suggests two narratives of nature: (1) Nature-ruralist, based on the idyllic and vulnerable position of the rural. The sense of place and nature is intangible, almost sacred. (2) The utilitarian perspective that admits successive changes in the rural space that accommodate the place, including the wind-power. The sense of place and nature would be quantifiable, valuable and even scientific. This author continues [41] that the transformation of nature into new cultural rural environments leads to a new rural environmentalism with different visions associated with the locality, global problems and, on other occasions, the vulnerability of the rural/local environment.

The arguments in favors of wind farms come from their contribution to solving the global environmental and energy crisis based on renewable energy sources. Global villages would be an argument in favor of alternative energies [6]. In this context, small villages would be part of a scalar global village energy politics. The usual argument would be the "sacrifice" of the local rural environment to achieve global well-being and sustainability. The (local) community loses its autonomy. In some cases, a certain local support for wind farms confront with an opposition from actors and agencies external to the community. Much of the responses to wind farms have an aesthetic character (including visual intrusion, noise, land disruption, construction disturbance ...), as it is "out of scale" with respect to the immediate rural environment. For this reason there is a predilection for empty population areas, where there is no immediate and directly affected community. The balance between global benefits and local impact frames the different socio-economic narratives and strategies of implantation, contestation and resistance. Fast [42] identifies four discourses in relation to the development of new wind energies: absolute opposition (concerns about the landscape and skepticism about the effects of climate change determine the discourse and strategy), qualified opposition based on the negative effects on the wildlife, impatient support identifies discourses around wind development projects and finally the idealistic support identifies narratives about built

wind energy projects. Ultimately, the debate would be about the location of energy alternatives in terms of form and functions. Community resistance "tends to be most pronounced where these unfamiliar landscape impacts and image not counterbalanced through acceptable level of local consultation" [23]. Adequate multi-level governance facilitates acceptable moral and political new energy transitions and environments.

Each wind farm implantation project sustains its own and particular history [43] as a result of the particular interaction between the macro and micro visions of the rural location. The singular combination of these two visions of the future generates multiple contested debates in renewable energy projects location, where the borders between insiders and outsiders to the local community are porous and blurred and are (re)defined in the form of local coalitions. The implementation of the wind project would redefine the classic concept of (rural) community close to place that still predominates in rural studies, due to a new perspective of affected community that comes from the new energy geographies [22]. The new affected communities would not be defined by the limits of localities or topographic regions but by the impacts of wind projects (mainly visual and noise). Many new wind developments are located on the borders of municipalities and regions and even between nations impacting neighboring communities. This would increase the flexible and fluid nature of the space in large installation projects, which would also affect the recipient community for the distribution of benefits [22].

The new open community is defined by interests, impacts and distribution of compensation/benefits, in a variable and open way in each project. Among the benefits of wind projects, the national economic gain, the economic growth and employment at project level and the opportunity community benefit are usually cited [43], especially in places of rural decline. The scalar interaction is very relevant to define the benefits of wind farms. The arguments of the opponents of these initiatives are situated within the framework of the "other" spaces and the "other" vulnerable populations. These projects reinforce spatial marginality and only benefit a part of the population and exclude the majority. The disturbance of the landscape by wind farms accentuates the spatial marginality of remote rural areas. Socio-spatial displacement processes can originate in wind farms, by altering the traditional social balance. Furthermore, noise can affect the health of the most vulnerable local population. At a micro level, the interaction between rural identities and place performances explains the variable responses to the wind farm [44]. The responses to the installation of artificial artifacts strange to a natural-cultural environment warn of the irreversible changes in symbolic rural places. By contrast, alternative rural visions of identity not based in rural idyll are more compatible with artificial structures that would be part of fluid and hybrid spatial structures and not of fixed and static realities.

Some research suggests that the position of the local population is ambivalent and reflective between these two positions, in favor and against wind energy projects, and it must be situated in the place-based experiences and memories of the community [44]. Alternative energy projects are more socially acceptable when local communities are considered in the localization and implementation process, but there is usually a notable barrier to community ownership for the private/subsidy model [6]. The conflicts usually lie in the balance between socio-economic benefits at national and international scale and the local environmental costs, but many contested debates are situated in the complex and multifaceted place spatial and temporal context of reference [6]. Some authors have even pointed out that "the conflicts over the installation of wind farms constrain the potential to adopt an effective means for mitigating climate change" [45]. The generation of local energy protests can only be explained by the

complex interaction in the local implementation process of elements based on the political agency and in the socio-political and economic context of the community [46]. One of the sources of resistance to the implementation of renewable energies is its impact on rural tourism [47]. The resistance strategies are built on particular conceptions of the rural place and are situated at the level of the implantation project, while the arguments in favor are established around the sacrifice of a place for the global benefit. But, the protests have a transition from cultural symbols to material concerns (jobs and incomes) [5]. This local-global duality is a key element in the different strategies at local level. In any case, the duality wind energy and tourism conflict is a complex issue with multiple nuances and particularities that must be resolved at the local level.

In the case of farmers, some authors have pointed to the role of wind energy projects as a form of diversification [48], which has different narratives and segmented positions of farmers according to the personal socio-economic characteristics of their agricultural businesses. There is a wide spectrum of situations and strategies ranging from farmers who base their strategy on maximizing resources to lifestyle farmers. There is no convergence, even at the regional level, on the availability of renewable energies as an option for agricultural diversification. In gentrified rural communities, conflicts often emerge from new social groups who realize that the place they chose to live may have unwanted changes that affect their unique idyllic life and the value of their real estate investments [49]. The new rural populations have new ideas, values and approaches to rural life that they can confront with traditional elites in resistance against (or not) the new alternative and renewable energy developments [5].

Environmentalism tends to reflect class based politics around the new middle class [18]. The antagonisms between the traditional populations with some productivity interests derived from the possession of the land and the new populations are common, in the context of a new eco-gentrifying ideal, which tries to preserve and qualify the keys to an exclusive rural environment/place traditional. Consequently local social fragmentation is clear in the different options for energy change and transition. Neither the traditional agrarian block nor the new residents establish transversal and universal positions regarding the installation of new wind energy projects. In addition, energy transitions can initiate accelerated processes of gentrification and social change associated with new populations of urban origin with employment in energy facilities. Consequently, the response at the local or community level is usually weak, variable and fractional.

Local (rural) societies are currently plural and do not have homogeneous positions on new wind energy projects. Some authors suggest that it is necessary to "assemble" [50] the different interests that interact in the decision and implementation processes of a new alternative energy development scenario: first at the local level and later on a scalar basis. As suggested by Murdoch [4] "the assemblages should comprise rich ecologies of the human and the non-human, the social and the natural… in form of heterogeneous ecologies". The alternative socio-material assemblages founded particular energy (rural) transitions and new energy artificial/rural landscapes [23].

The tendency in wind energy is increasing the scale of projects. Windmills have always been part of the traditional agricultural landscape. The concept wind farm has appeared since the 1990s as an alternative energy and complementary source of income and element of diversification. Gradually the size of the projects has been accommodating to the improvement of technology and has consumed more land to be configured as a wind park or even as a wind factory, losing its initial function as an element of agricultural diversification. This rise in the size of the wind energy projects has resulted in an increase in conflicts and negative material socio-ecological impacts in the health of the planet [51]. The implementation of new mega wind projects influences the property structure by

generating new landowners around energy companies and significantly increases the rents of rural owners with lower agricultural productivity [52], a tendency that indirectly harms the most agricultural vulnerable and marginalized. The wind parks and wind factories are currently subject of global financial negotiations between large consortiums of companies. This situation has led to the trial of micro political processes with the participation of civil and environmental organizations, to achieve social acceptance of the new mega-projects that colonize the (rural) space [51]. The social (local) response is scarce due to the usual consortium between energy companies, public administrations and environmental organizations. Landscapes and traditional communities in the poorest areas are sacrificed for the overall good of an urbanized society.

6. Conclusions

An energy transition is a relevant part of a global post-productivist transition in the new geographical context of a multifunctional countryside [4]. The academic perspective that should lead the new geographical ruralities of energy transitions is the social, economic and environmental impact in a community renewable energy scheme in the form of non rich rural carbon (remote) places. Rural areas are key territories for an adequate global energy transition: they provide the necessary resources and are wide spaces for the installation of renewable energy sources [3]. But, despite the relevance of rural areas for the new energy transitions, this dimension is clearly underexplored in the context of recent geographical processes of rural areas [2].

A global dimension (South and North) of the poor (rural) places of the new energy transitions must integrate the infinite trajectories of the plural rural communities for guarantee the sustainability of this new transformation process. The new energy geographies of rural spaces as key driver of change suggest a scalar perspective. In this sense, it is necessary to consider the competing narratives and rationalities of local ruralities in the management of spatial processes of change [8] and their influence on the power politics structure of the new energy/rural small communities. Local communities have a limited capacity for adaptation and response to the change processes derived from energy transitions [9]. The transition towards a new energy rural community is decisive for the adequate development of the community (rural/plural) dominated by the new dynamics of adaptation to climate change [11].

The resistance and response strategies of rural communities against alternative energy implementation projects suggest a certain spatial complexity. The territoriality of new energy development based on alternative energy sources determines the importance of the local population for their implementation and operation. But the local population is a fluid linked to the mobility, which suggests a question in populations affected by advanced gentrification processes, in relation to which is the local population? The population that carries out agricultural activities is a very restrictive criterion. To consider the benefits and gains or cost in community perspective, a transit from close (rural) community to open (scalar) community is necessary. In this sense, there are different points of view of the new energy rural community that express the complex changes to tradition rural community to energy community, the stress of local services and a community period of adaptation.

The alternatives sources of energy are not always good for the more-than-human rural materialities and integrate different notions of rural alternatives. Social concerns about climate change and national and global energy security generate two contradictory paths in energy supply [23]. Two

sides of alternative energy transitions are considered: (1) exhaustive energy fracking and (2) renewable green energy. (1) The energies based on the unconventional fossils fuels suggest an exhaustive planet, not based in social-environmental justice where energy is sought by exploring the material limits of the health of the planet, once conventional extraction procedures have been forced in old fossil energies. This new mode of extraction generates new subterranean and geological politics based on the limits of local extractivism. In any case, the arguments in favor and against the HVHF are always used to ensure the prosperity of the rural community, based on signs of traditional rural identity or on processes of socioeconomic change. In the context of remote rural areas, the concept of "boomtown" has been used to define the remarkable growth of remote small communities with few opportunities for alternative economic development [31]. In parallel, discourses on the HVHF can contribute to reinforcing the marginalization of remote rural areas in the context of other geographies.

(2) Wind energies suggest a green, renewable and clean future of rural (poor and rich) areas outside the traditional dynamics of old carbon societies. But they demand sacrifices from traditional communities in their historical and cultural rural environment. The arguments in favor of wind farms come from their contribution to solving the global environmental and energy crisis based on renewable energy sources. Global villages would be an argument in favor of alternative energies [6]. Some research suggests that the position of the local population is ambivalent and reflective and needs to be situated in the place-based experiences and memories of the community [44]. Local (rural) societies are currently plural and do not have homogeneous positions on new wind energy projects. It is advisable to "assemble" the different agents that interact in the decision and implementation processes of a new alternative energy development scenario [50]. The key to the sustainable and healthy future of wind energy is the proper management of the increase in the scale of projects. Windmills have always been part of the traditional agricultural landscape. As an alternative energy and complementary source of income and element of diversification, the word wind farm has appeared since the 1990s. Gradually the size of the projects has been accommodating to the improvement of technology and has consumed more and more land to be configured as a wind park or as a wind factory, shedding its function of agricultural diversification. The relevance of the scale of the projects separates them from a specific local community and places them in the game of global environmental and financial interests.

The new energy geographical transitions approach has limitations at place level interpretations due to the contradictory effects of the management of each new energy source can generate in different geographical contexts. In the future an adequate analysis of local and regional manifestations is a relevant research area [53,54].

Conflict of interest

The author declares no conflict of interest.

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