

Energy Citizenship in Europe

EnergyPROSPECTS Factsheet Series

Part 8: Aspects of ENCI IV: Towards environmental sustainability



Cite as Vadovics, E., Szóllóssy A. (2023) EnergyPROSPECTS Energy Citizenship Factsheet Series, Part 8: Aspects of ENCI III.: Towards environmental sustainability. EnergyPROSPECTS (PROactive Strategies and Policies for Energy Citizenship Transformation), WP3 ENCI mapping. [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.8211857>

Published by GreenDependent Institute as part of the EnergyPROSPECTS Consortium

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This document is part of a factsheet series on energy citizenship that can be found at <https://www.energyprospects.eu/>

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This publication was prepared with funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101022492.

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Introduction

This document is Part 8 of the EnergyPROSPECTS Factsheet Series. We have created the Series to publish the results of the mapping of energy citizenship in Europe, along with the first stage of our analysis of the data. The EnergyPROSPECTS consortium mapped 596 cases of energy citizenship (ENCI) and collected data on many aspects of the latter. Although the analysis is a work in progress, we believe it is important to share our data and, through it, contribute to the understanding of energy citizenship in Europe.

The methodology for the data collection and analysis is presented in [Part 1 of the Factsheet Series](#) (Vadovics, Szöllőssy, 2023); for this reason, it is not repeated here.

The Factsheet Series includes the following parts:

1. [Part 1: Introduction and Methodology](#)
2. [Part 2: Motivations and Objectives](#)
3. [Part 3: Actors and Organisations](#)
4. [Part 4: Funding](#)
5. [Part 5: Aspects of ENCI I.: Hybridity, private/public, passive/active forms](#)
6. [Part 6: Aspects of ENCI II.: Frontrunners and late adopters, pragmatic and transformative ENCI](#)
7. [Part 7: Aspects of ENCI III.: Towards social sustainability: citizen power and equity/justice issues](#)
8. **Part 8: Aspects of ENCI IV.: Towards environmental sustainability: levels of environmental sustainability and recognising ecological limits**
9. [Part 9: Aspects of ENCI V.: Contesting the current system](#)



Part 1: Environmental sustainability

Q58. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported), considering **environmental sustainability**, please select which applies most to this particular case.¹

- Environmental sustainability is **not considered**.
- **Low**: If given any consideration, environmental sustainability issues are mostly taken for granted and not explicitly taken into account. In the lowest forms, environmental sustainability tends to be dealt with as a positive or negative externality.
- **Medium**: Environmental sustainability is part of the process or initiative, but this concern is addressed in a superficial way (focus on efficiency strategies) and without dedicated assessment. Energy remains the main focus.
- **High**: Environmental sustainability is a core issue, which is followed with a holistic strategy (mix of efficiency, consistency and sufficiency measures). Its assessment through indicators is seen as desirable.
- I don't know / not enough information is available about this aspect

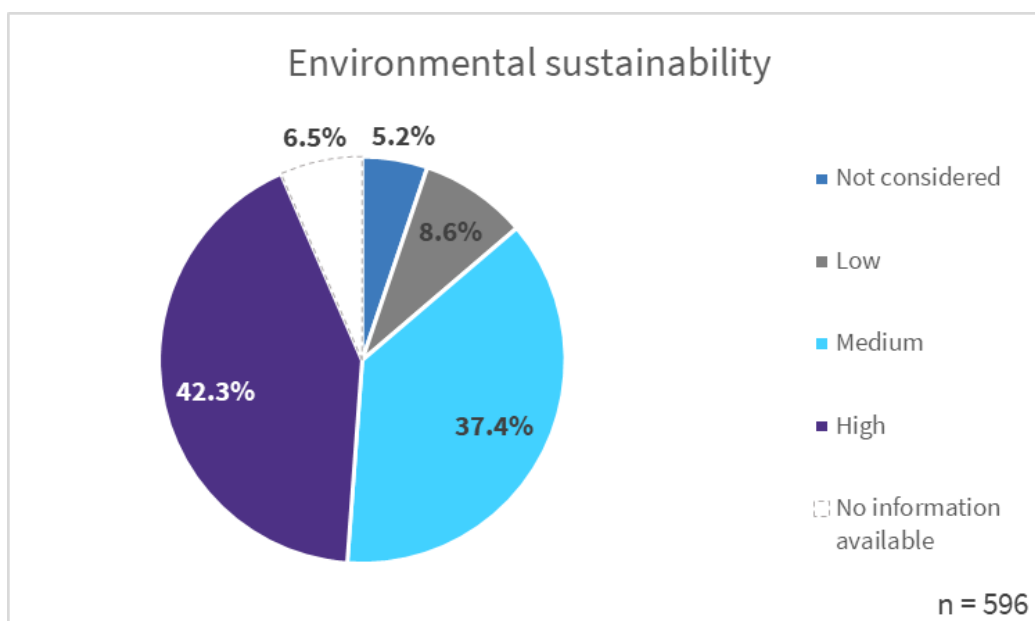


Figure 1: Distribution of mapped cases according to their consideration of environmental sustainability

Figure 1 shows the distribution of responses to the question on environmental sustainability for the whole database. As can be seen in the figure, environmental sustainability is considered a core issue for the largest proportion of mapped cases (42.3%), followed closely by those for which it is part of the case but is addressed only superficially

¹ The questions listed at the beginning of sections are in the form they were included in the ENCI mapping survey. For the full survey, please consult Vadovics et al., 2022.

(37.4%).² Figure 2 shows the distribution of cases, omitting those for which researchers could not find enough information about this aspect through desk research and thus were not able to provide an assessment.

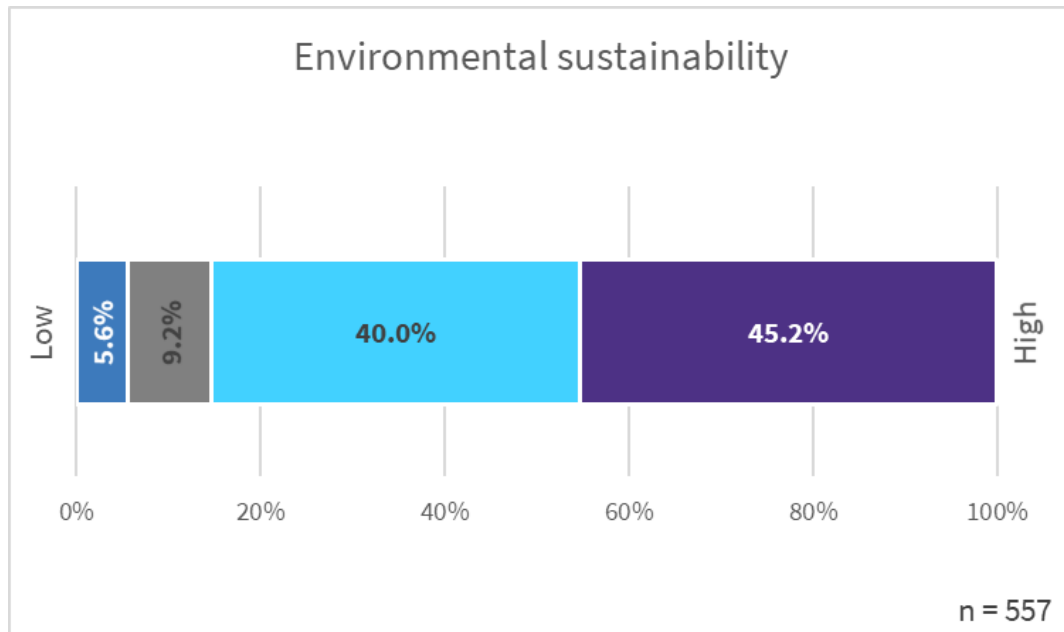


Figure 2: Distribution of mapped cases according to environmental sustainability – omitting cases that could not be evaluated from this perspective

² Please refer to D2.2 (Debourdeau et al., 2021) for more background information about how environmental sustainability is understood in the EnergyPROSPECTS project.

Reformative and transformative cases

Figure 3 displays the distribution between cases categorised as reformative (Types 1, 3, 5, 7 and 9 in the [EnergyPROSPECTS conceptual typology](#)) and transformative (Types 2, 4, 6, 8 and 10). It can be clearly seen that those cases considered transformative by the researchers are significantly more likely to be classified as “High” in terms of environmental sustainability than the reformative ones. Similarly, they are significantly less likely to be categorised as “Low” in terms of environmental sustainability.

This finding confirms an important distinction between reformative and transformative cases of energy citizenship in terms of environmental sustainability (similarly to citizen power/control and justice/equity, as shown in [Part 7 of the Factsheet Series](#)). At the same time, it also highlights the fact that reformative cases can also be categorised as “High” and transformative as “Low” with regard to environmental sustainability. This illustrates the complex nature of energy citizenship.³

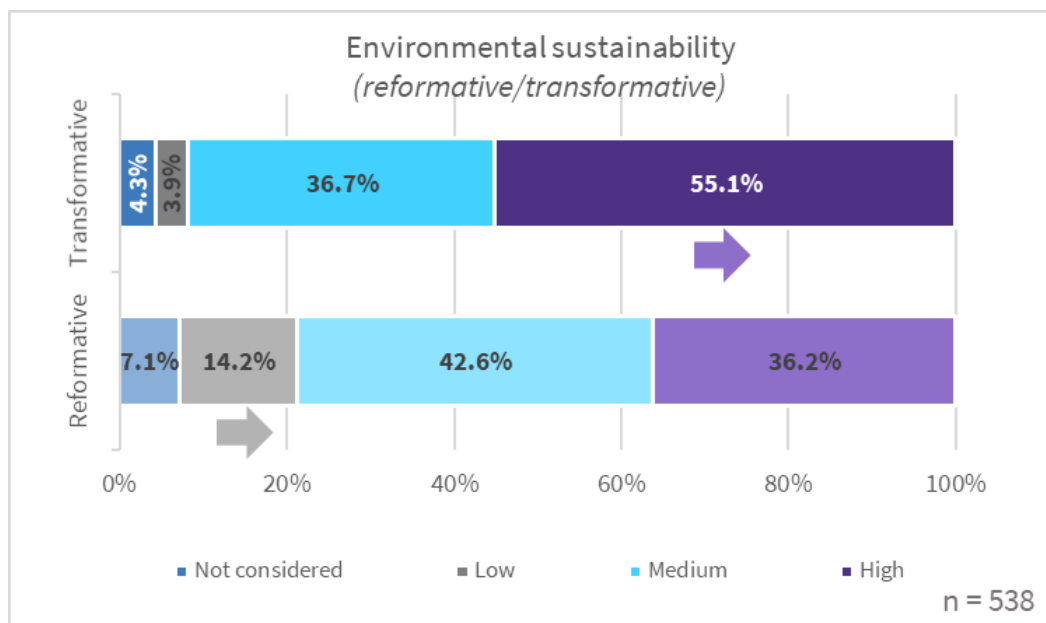


Figure 3: Distribution of reformative and transformative cases according to their approach to environmental sustainability

³ Please see more details on this issue in Debourdeau et al., 2023 and in upcoming project deliverables and papers.

Figure 4 shows the differing approach to environmental sustainability between cases that were evaluated as “High” or “Medium” vs. “Low” or “Not considered” regarding all four aspects of energy citizenship used to create this specific data breakdown.⁴ It can be seen that among the “High/Medium” cases, we cannot find any that have low or no consideration for this aspect, whereas in the other group, the share of those categorized as “High” is significantly smaller. We can also identify cases that do not consider this aspect of energy citizenship.

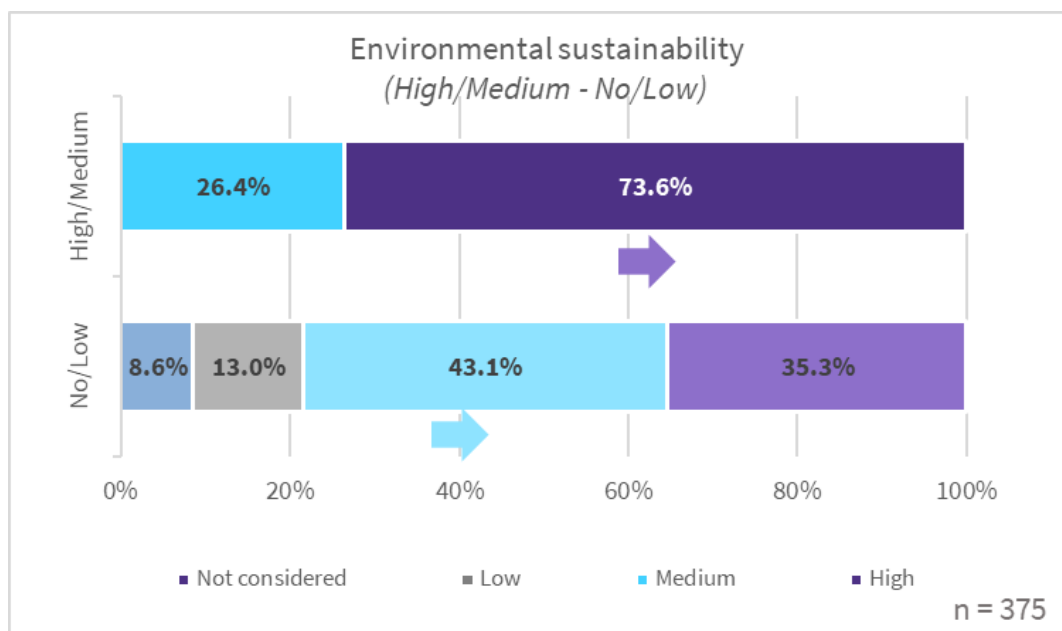


Figure 4: Distribution of “High/Medium” and “No/Low” cases according to their approach to environmental sustainability

⁴ The four aspects are the following: citizen power/control, equity/justice, environmental sustainability and the recognition of the carbon limit, see details in Vadovics, Szóllóssy, 2023.

Regions of Europe

From the point of view of environmental sustainability, we found some differences between the cases that were mapped in the various regions of Europe. First, the number of cases not considering environmental sustainability were significantly higher in Western Europe than in Eastern or Northern Europe. Further, in Eastern Europe, the number of cases where environmental sustainability is a core concern was significantly higher than in Northern or Western Europe. Finally, Northern Europe had a significantly higher number of cases with a “Medium” level of consideration for environmental sustainability than any of the other regions.

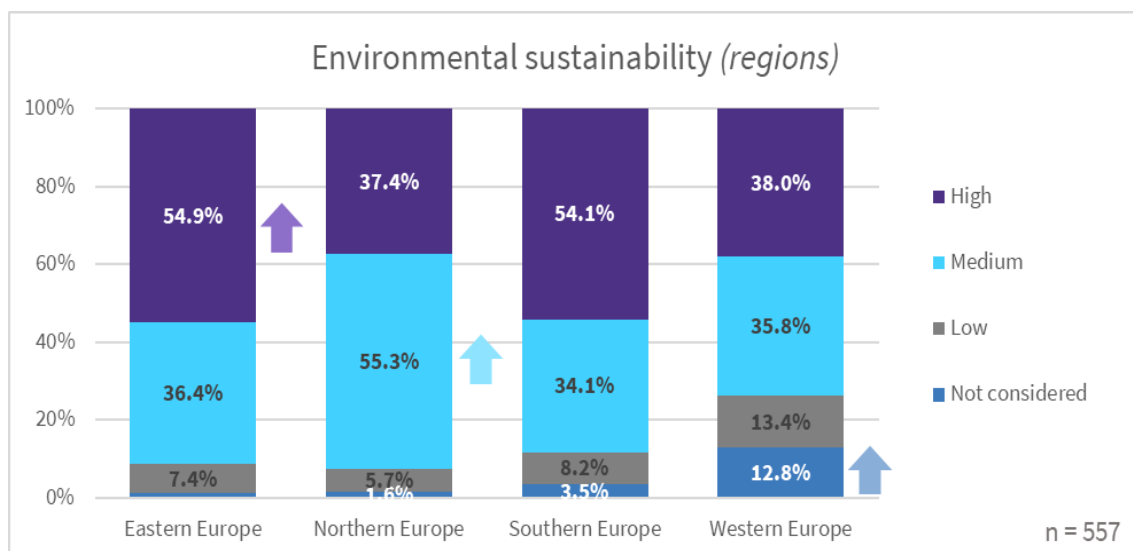


Figure 5: Distribution of cases in different European regions according to their approach to environmental sustainability

Part 2: Recognition of the carbon limit

Q60. Does/did the case shape/enable/support ENCI that **explicitly recognises the ecological limit of atmospheric carbon emissions...**?

- **No recognition** or mention of carbon limit or sustainable carbon footprint
- **Implicit recognition** (No explicit mention of the ecological limit of atmospheric carbon emissions or sustainable carbon footprint. But despite the lack of formal references to either of them, the case is involved in activities to reduce the consumption and/or emission of carbon.)
- **Explicit recognition** (The ecological limit of atmospheric carbon emissions or sustainable carbon footprint is mentioned in core documents, and the actors involved in the case are clearly engaged in attempts to reduce consumption and/or emission of carbon.)
- **Explicit recognition with mention/objective** of not exceeding the max. carbon footprint (In addition to mentioning the ecological limit of atmospheric carbon emissions or sustainable carbon footprint, the maximum sustainable carbon footprint and/or emissions are also defined.)
- I cannot say based on the information available about this aspect.

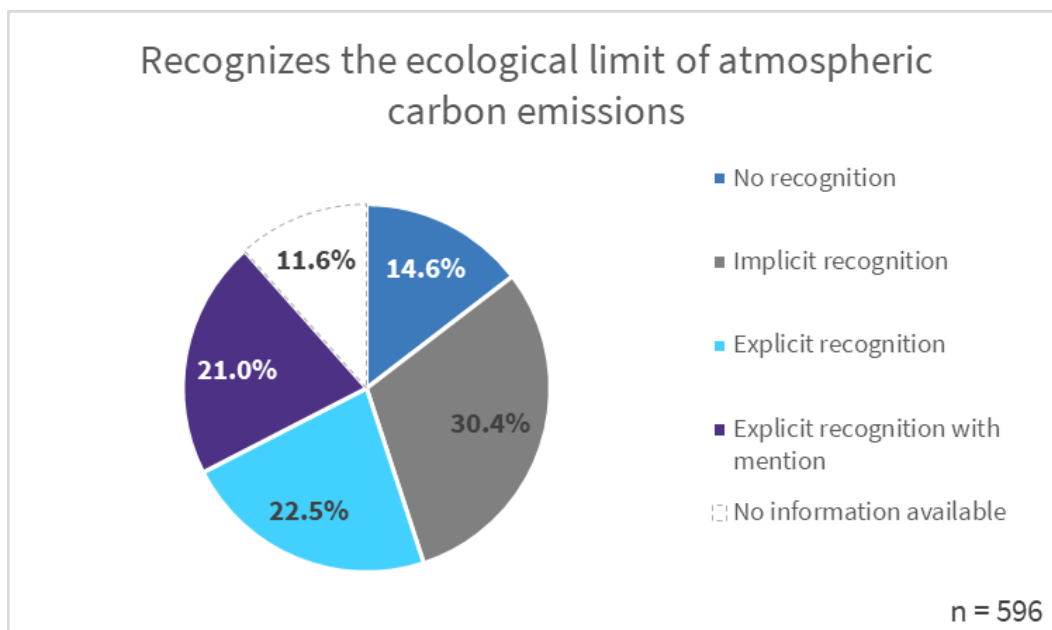


Figure 7: Distribution of mapped cases according to their recognition of carbon limit

Further exploring environmental sustainability, and specifically related to transitioning to a sustainable energy system, we found it important to examine to what extent cases of energy citizenship recognize the ecological limit of atmospheric carbon emissions. Somewhat surprisingly, we found that the category “implicit recognition” applied to the highest number of cases. What is even more striking is that only about a fifth

(21.0%) of the mapped cases recognise carbon limit explicitly *and* explicitly mention the importance of having a sustainable carbon footprint.

Figure 8 shows the distribution of cases, omitting those for which the researchers could not find enough information about this aspect through desk research and thus were not able to provide an assessment.

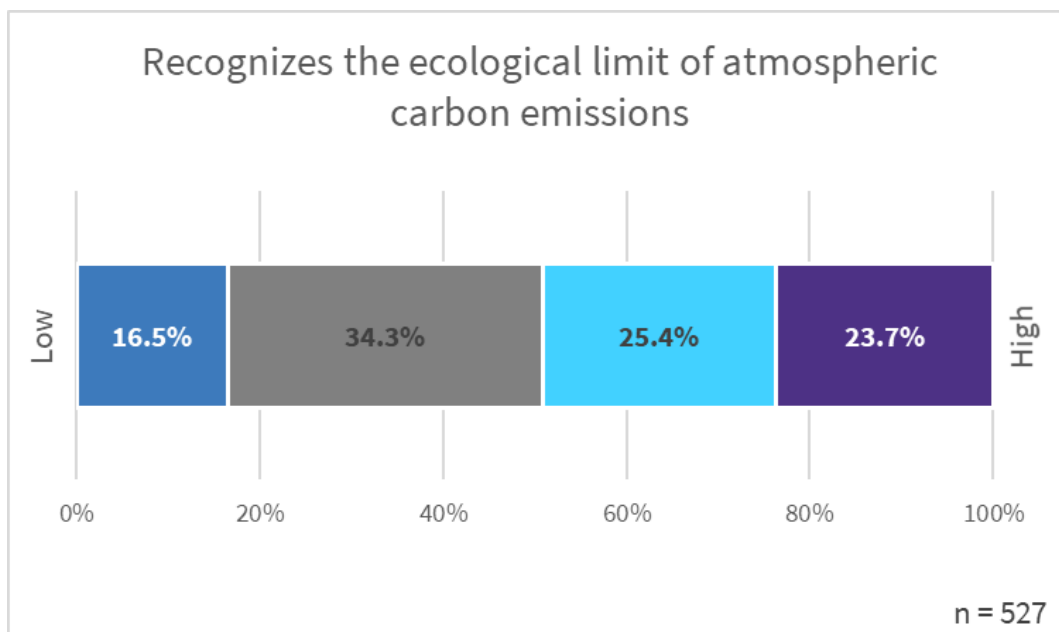


Figure 8: Distribution of mapped cases according to their recognition of the carbon limit – omitting cases that could not be evaluated from this perspective

Reformative and transformative cases

In our analysis, we also examined whether there was a statistically significant difference between cases categorised as reformative and transformative in terms of recognising the carbon limit. Our assumption was that since we are analysing cases of energy citizenship, transformative cases would be more likely to explicitly recognise the carbon limit. This was confirmed by the empirical data, with significantly more transformative cases recognising the carbon limit *and* having concrete reduction targets (Figure 9). However, the difference between the two groups was less clear than we expected. Furthermore, a considerable number of cases, both reformative and transformative, either do not recognise the carbon limit or only recognise it implicitly. In light of the imminence of the climate crisis and the fact that it is often one of the main sources of motivation for initiating cases of energy citizenship (see [Part 2 of the Factsheet Series](#)), this is a finding that we will examine in more detail in our work (Vadovics et al., forthcoming).

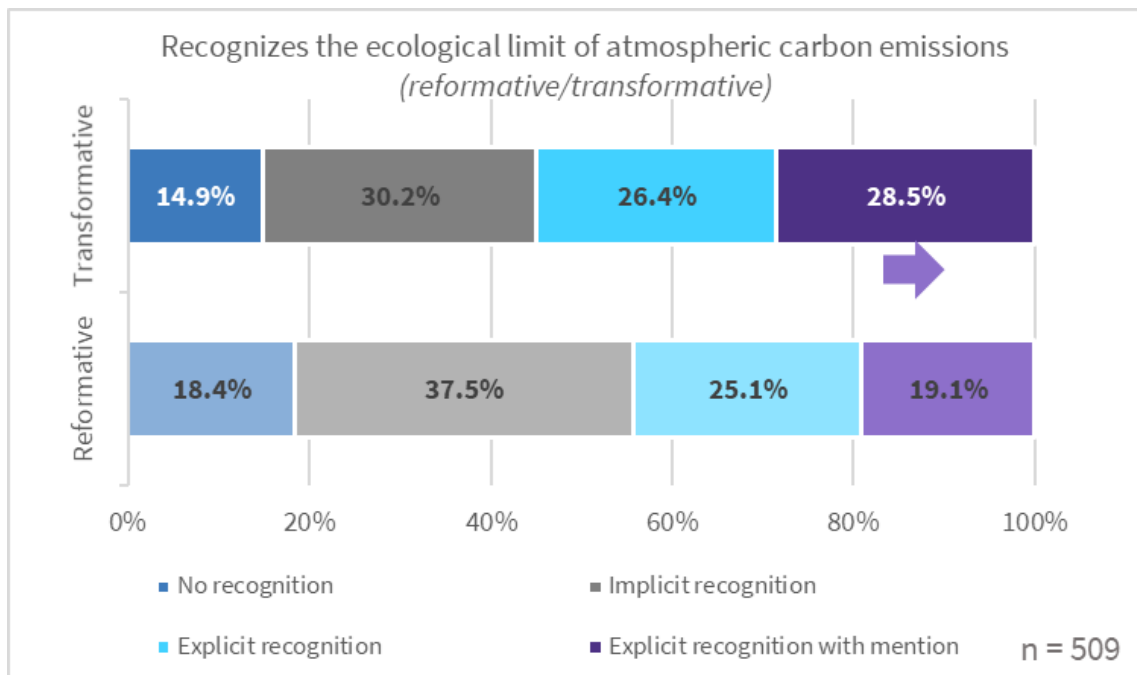


Figure 9: Distribution of reformative vs. transformative cases according to their recognition of the carbon budget

Considering the distribution of cases according to the level of recognition of the carbon limit when applying the “High/Medium” vs. “No/Low” breakdown of data, the difference between the two groups is considerable. As might be expected, there are

significantly more cases associated with “explicit recognition with mention [of the carbon limit]” and “explicit recognition [of the carbon limit]” among the cases classified as “High/Medium”.

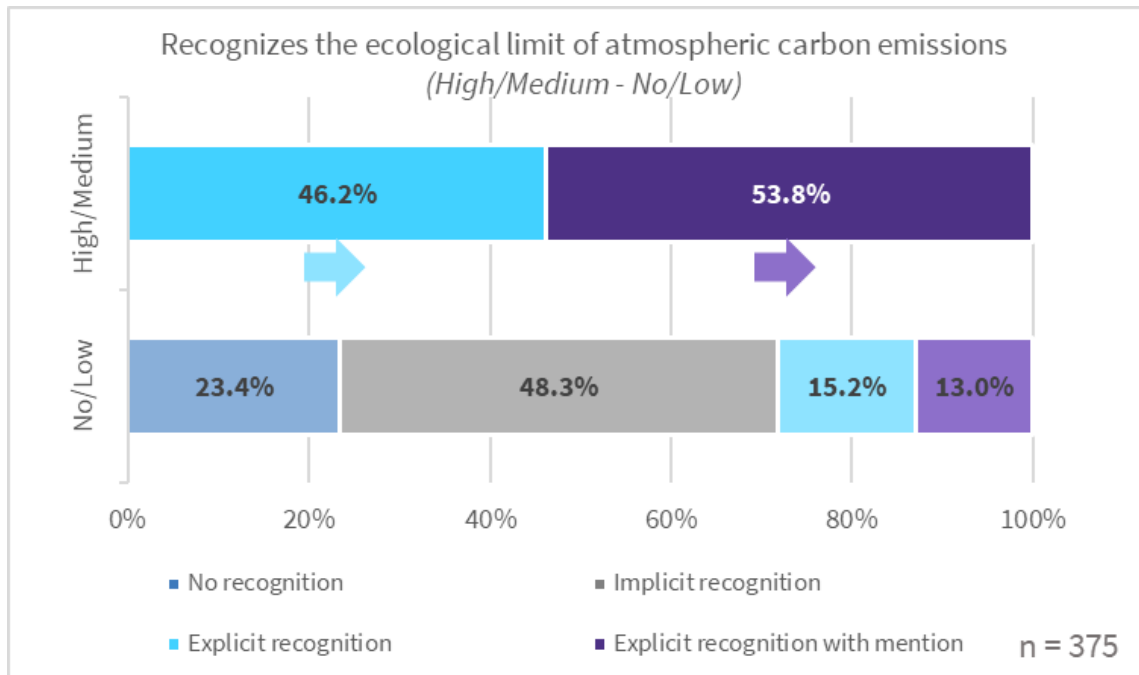


Figure 10: Distribution of “No/Low” vs. “High/Medium” cases according to their recognition of the carbon budget

Regions of Europe

From the point of view of recognizing the carbon limit, we identified only one significant difference between the cases that were mapped in the different European regions. In Northern Europe, the share of cases that implicitly recognise this limit is significantly greater than in Western Europe.

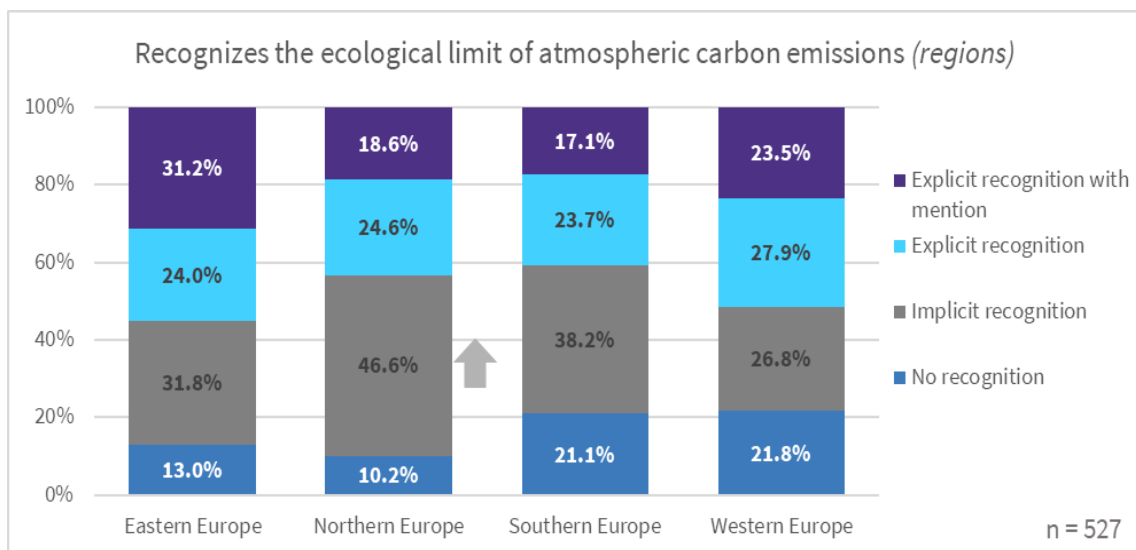


Figure 11: Distribution of cases by European region and according to their level of recognition of the carbon limit

Part 3: Recognition of other ecological limits

Q61. Are there **other ecological limits** (e.g. biodiversity loss, deforestation, freshwater use, chemical pollution, etc.) mentioned and recognized as well?"

(If yes to Q61) Please list which limits are mentioned and/or recognized:

In addition to the recognition of the ecological limit of atmospheric carbon emissions, we also wanted to know whether cases of energy citizenship recognise other ecological limits. Based on our desk research, 27% of the cases (161 out of the 596 mapped) do so. However, as shown in Figure 12, for about a fifth of the cases (18.6%), it could not be determined based solely on desk research whether ecological limits are recognised.

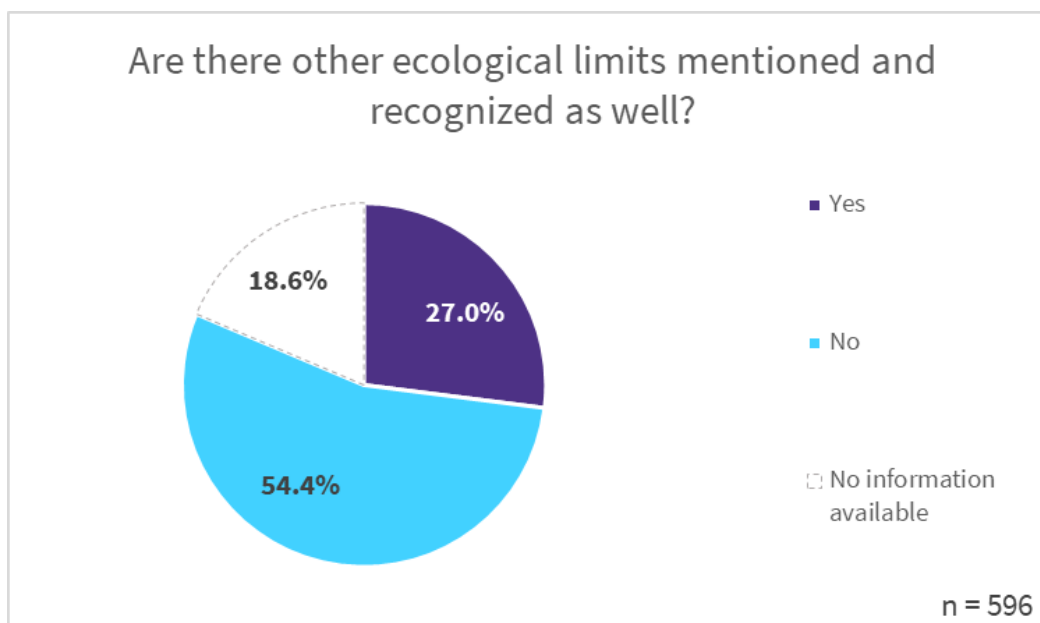


Figure 12: Distribution of ENCI cases according to whether they recognize ecological limits in addition to the carbon limit

As for which limits are recognised, we found that 50% of the cases that did recognise additional limits (14% of all cases) mentioned biodiversity loss. The latter is by far the most often mentioned limit. Second on the list is freshwater use and quality, recognised by 27.3% of the cases (7.4% of all the cases that were mapped), followed by air pollution (20.5% and 5.5%, respectively). Other limits mentioned included deforestation, soil quality and land use change, chemical pollution, and resource use in general.

Another interesting issue is whether **cases that recognise the carbon limit either implicitly or explicitly also recognise other ecological limits**. Out of the 440 cases that may be categorised this way, 139 recognise not only the carbon limit but other ecological limits as well (23% of all mapped cases).



Reformative and transformative cases

The examination of reformative vs. transformative cases from the perspective of whether they recognise ecological limits other than the carbon limit reveals that statistically more reformative cases than transformative ones do not recognise any other limits.

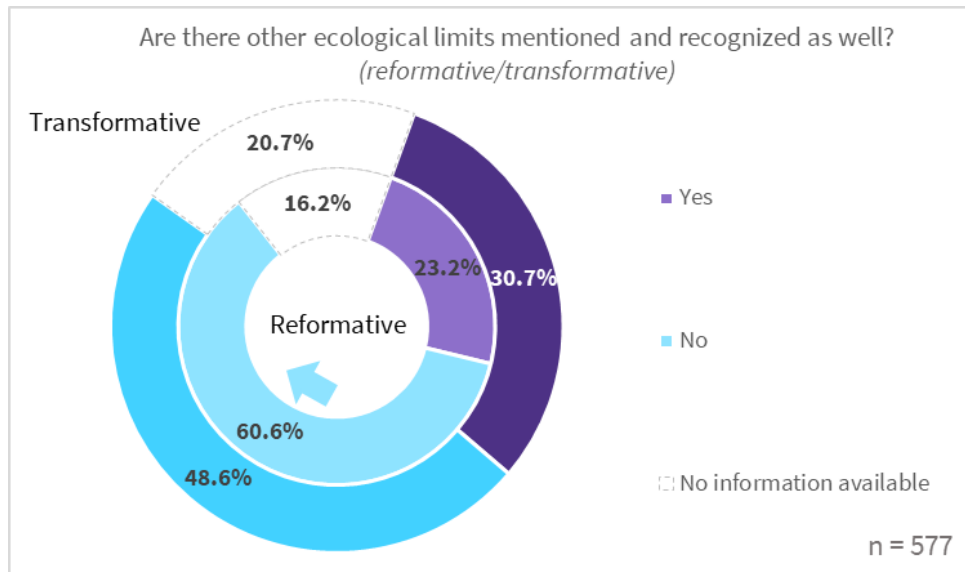


Figure 13: Distribution of reformative vs. transformative cases according to whether they recognise ecological limits

As for whether there is a difference between “High/Medium” and “No/Low” cases from this perspective, Figure 14 shows that the number of cases in the former group is significantly higher than in the latter (53.8% and 20.4%, respectively).

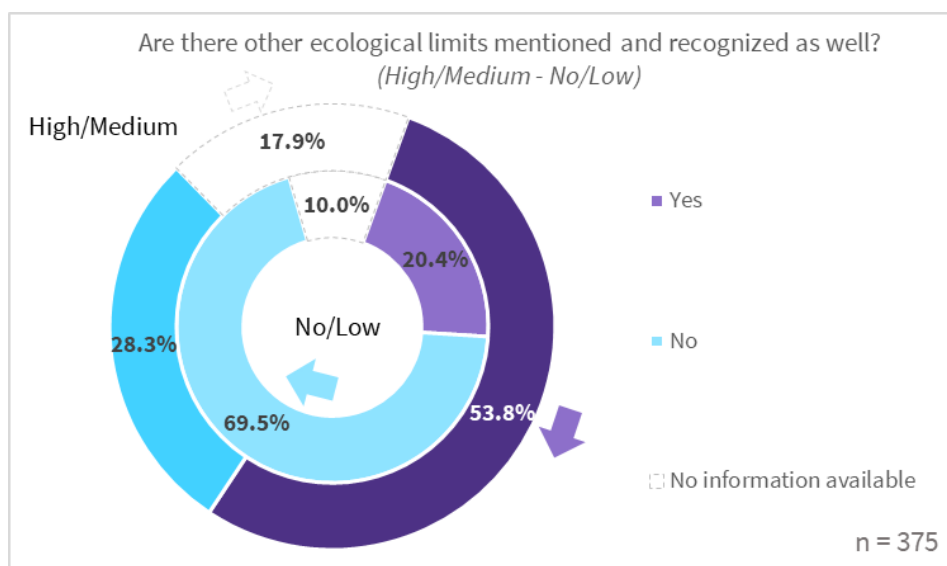


Figure 14: Distribution of “No/Low” vs. “High/Medium” cases according to whether they recognise ecological limits

Regions of Europe

In terms of the recognition of ecological limits other than the carbon budget, there is a significant difference between regions of Europe. In Eastern Europe, there were significantly more cases that recognise ecological limits than in Western Europe.

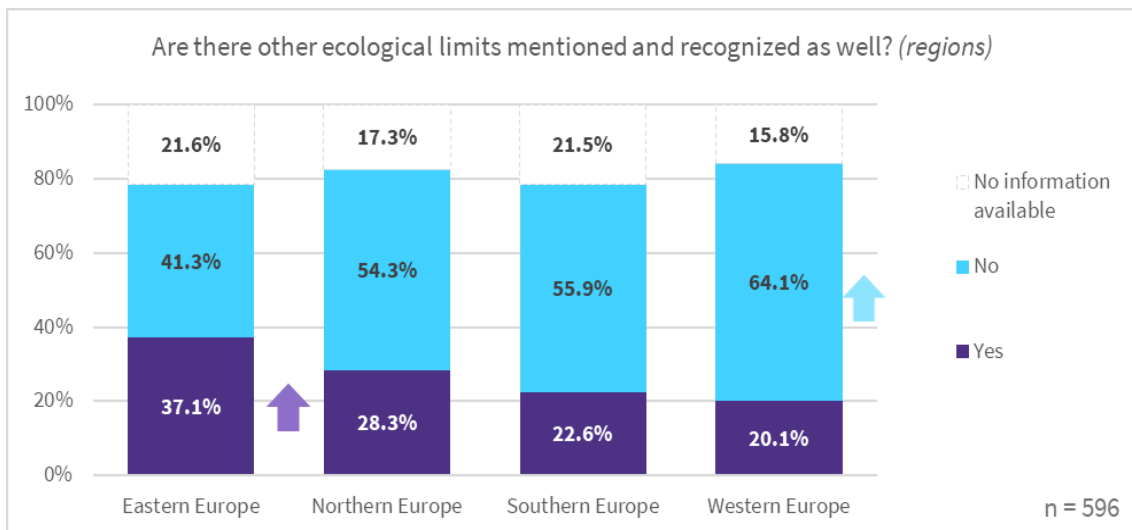


Figure 15: Distribution of cases according to European regions and whether they recognise ecological limits

Part 4: Environmental sustainability and the recognition of carbon limit

In this section, we examine to what extent environmental sustainability and the recognition of the carbon limit go hand in hand. Our assumption was that if a case is characterised as “High” for environmental sustainability, it should also be classified as at least “Medium” for recognition of the carbon limit, i.e., it should recognise the carbon limit explicitly, as this should be an integral part of environmental sustainability, especially in the case of energy citizenship.

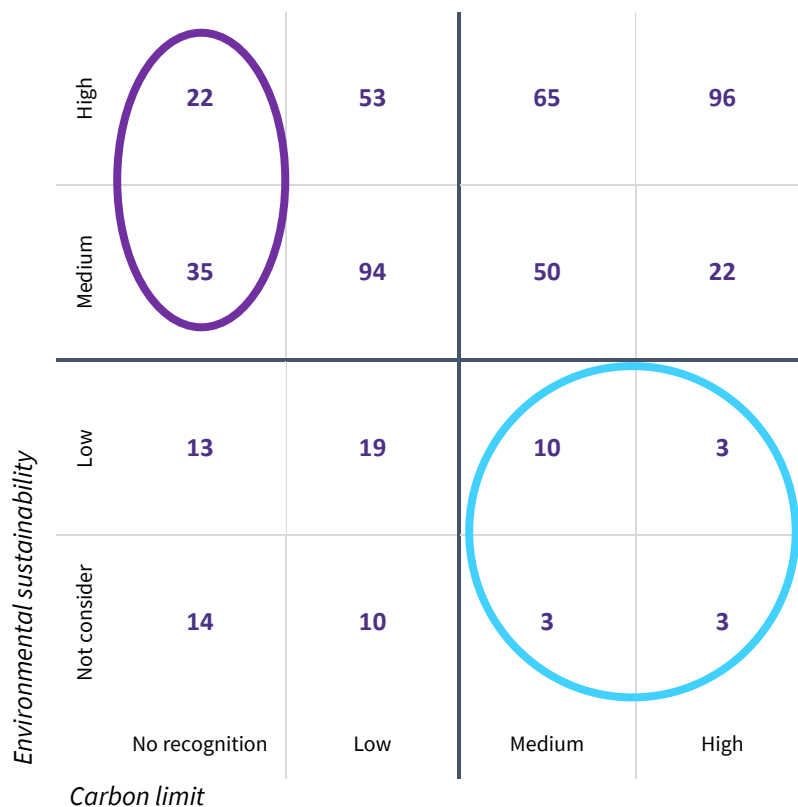


Figure 16: Mapping the co-occurrence of environmental sustainability and recognition of the carbon limit in cases of energy citizenship

Figure 16 illustrates that this does not appear to be the case. The cells marked by the purple ellipsis indicate the relatively large number of cases for which the carbon limit is not recognized. In contrast, such cases were categorised as “Medium” or “High” in terms of environmental sustainability. Similarly, although fewer in number, cases marked by the blue circle are those characterised as “Medium” or “High” in terms of recognising the carbon

limit but were assessed as “very low” in terms of environmental sustainability. These cases will be examined in more detail in an upcoming analysis that includes 40 detailed case studies within the EnergyPROSPECTS project (Vadovics et al., forthcoming).



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