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CARBON CAPTURE AND STORAGE IN THE MEDIA: AN ANALYSIS OF NATIONAL AND REGIONAL COVERAGE IN SPAIN, PORTUGAL AND FRANCE

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LA CAPTURA Y EL ALMACENAMIENTO DE CARBONO EN LOS MEDIOS DE COMUNICACIÓN: UN ANÁLISIS DE LA COBERTURA NACIONAL Y REGIONAL EN ESPAÑA, PORTUGAL Y FRANCIA

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32 pp, 11 ref., 18 fig., 2 tbl.

RESUMEN:

Los ciudadanos no suelen tener experiencia directa con los nuevos desarrollos tecnológicos por lo que los medios de comunicación desempeñan un papel clave a la hora de amplificar o atenuar el riesgo y las oportunidades asociadas a dichas tecnologías. Este informe pretende analizar las condiciones para la comprensión y aceptación de las tecnologías CAC por parte del público, centrándose en el tipo de información a la que éste tiene acceso cuando busca información en los medios de comunicación tradicionales (prensa escrita).

En consonancia con las investigaciones previas sobre CAC, nuestro análisis de prensa se centra en la identificación del tipo de discurso que transmiten los medios de comunicación en cada una de las regiones estudiadas (análisis comparativo entre países), incluyendo la identificación de los actores implicados en el debate sobre CAC, los principales argumentos que subyacen a la variedad de discursos sobre CAC y las posibles diferencias entre los periódicos nacionales, regionales y locales de cada país.

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Citizens often do not have direct experience with new technological developments and the media play a key role in amplifying or mitigating the risk and opportunities associated with such technologies. This report aims to analyse the conditions for public understanding and acceptance of CCS technologies by focusing on the type of information the public has access to when seeking information in the traditional (printed) media.

In line with previous CCS research, our press analysis focuses on identifying the type of discourse conveyed by the media in each of the regions studied (cross-country analysis), including the identification of the actors involved in the CCS debate, the main arguments underlying the variety of CCS discourses and possible differences between national, regional and local newspapers in each country.

KNOWLEDGEMENT

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TABLE OF CONTENTS

1 INTRODUCTION AND OBJECTIVES 6

2 METHOD & SAMPLE 8

3 RESULTS 11

3.1 CHARACTERISATION OF ARTICLES ABOUT CARBON CAPTURE AND STORAGE 11

3.2 CHARACTERISATION OF CARBON CAPTURE AND STORAGE IN ARTICLES 13

3.3 VALUATION OF CARBON CAPTURE AND STORAGE IN ARTICLES 18

4 CONCLUSION 22

5 REFERENCES 23

ANNEX: PRESS ANALYSIS PROTOCOL 24

NEWSPAPER CHARACTERIZATION 25

COUNTRY 25

NEWSPAPER 25

ARTICLE CHARACTERIZATION 26

CCS CHARACTERIZATION 27

ADDITIONAL QUESTIONS 32

INDEX OF FIGURES

Figure 1. Articles about CCS by year and country 11

Figure 2. Articles about CCS by type of article and country 12

Figure 3. Articles about CCS by type of author and country 12

Figure 4. Articles about CCS by length of article and country 13

Figure 5. Articles about CCS by scope of article (multiple answers) and country (multiple answers) 13

Figure 6. Main actors mentioned in the articles about CCS 14

Figure 7. Articles by extent of focus on CCS 14

Figure 8. Articles by location of CCS mentioned 15

Figure 9. Geographical scope of CCS if explicitly mentioned 15

Figure 10. Articles by kind of technical explanation of CCS. 16

Figure 11. Articles about CCS by themes 17

Figure 12. Articles about CCS by central themes 17

Figure 13. Main arguments in favour of CCS 18

Figure 14. Main arguments against CCS 19

Figure 15. Articles by valuation of CCS and country 19

Figure 16. Articles by valuation of CCS and scope of newspaper 20

Figure 17. Articles by valuation of CCS and type of article 20

Figure 18. Articles by valuation of CCS and type of author 21

INDEX OF TABLES

Table 1. Newspapers selected per region and type. 8

Table 2. Number of CCS coded articles per country. 9

1 INTRODUCTION AND OBJECTIVES

PilotSTRATEGY focuses on advancing understanding of deep saline aquifer (DSA) resources for geological CO_2 storage and will investigate in detail three regions of Southern Europe: Ebro Basin (Spain), Lusitanian Basin (Portugal) and Paris Basin (France). This will include acquisition of new data, detailed geo-characterisation, feasibility studies and preliminary design or pre-front end engineering and design studies. At the end of the project, the level of site characterisation in these three regions will be sufficient to allow a final investment decision to be made and for storage permitting and project approval to be obtained.

Recognising the social challenge of implementing geological CO_2 storage, one of the objectives is to investigate public and societal acceptance of CO2 storage pilots in the mentioned three regions as well as to lay the groundwork for future public engagement initiatives around these projects. One of the methods used, and the core of this report, is a local media analysis aimed to identify the type of discourse about CCS that different media sources transmit in each of the studied regions. This report is part of one of the deliverables in the Work Package 6 of PilotSTRATEGY project.

As public awareness and understanding of CCS is low, the role of media in influencing the CCS debate needs to be considered. Lay citizens usually do not have direct experience with new technological developments, and the media do play a role in amplifying or attenuating the risk associated with such technologies, including CCS. Media analysis can provide insights into how the public may understand and respond to CCS.

Various theoretical models provide relevant insights in this regard, such as the social amplification of risk framework (Kasperson et al, 1998) or the media agenda-setting model, i.e. the way in which the media and the actors appearing in them define the prominence of CCS (Kojo & Innola 2017).

The role of printed media in the CCS debate has increasingly called the attention of social sciences. Thus, a variety of studies on the role of printed media on CCS have been carried out in countries such as Germany (Van Alpehn et al, 2007, Fischedick et al 2009, Pietzner et al, 2014), Scotland and Poland (Brunsting et al, 2015), and Finland (Kojo & Innola 2017) among others. The main research topics include the perceptions and representations of CCS in the press, the discursive trends on CCS, the representations of CCS, or the level of press attention to CCS related conflicts, especially protests against CCS projects.

The main findings from previous CCS media-related research indicate that the overall tone of the news articles tends to be positive or neutral. An international review of the media coverage of CCS (2012) shows that the overall tone was positive or neutral, although the number of concerns about the technology was increasing. Earlier studies in the Netherlands (2007), Scotland and Poland (2015) confirm this overall trend of a positive/neutral coverage of CCS in the media. More recent findings from Finland (in 2017) show an even more favourable representation of CCS in the media, with 66% of the articles being positive or neutral, and a relatively low number of negative articles.

As could be expected, when the focus of the study is on CCS-related conflicts, i.e., protests against specific CCS projects, the overall tone clearly turns negative, as research on Germany illustrates: 66.4% of articles with a negative tone, followed by 27.2% of neutral and only 6.4% positive ones. Other studies have specifically focused on understanding offshore oil and gas socio-environmental conflicts and the role of the media (Pinto & Castro, 2021). This Portuguese study identified the main actors pro and against oil and gas exploration as well as the nature of the arguments deployed to defend and/or oppose future extractions. As far as the actors were concerned, governments and private organizations were the most supportive ones, while citizen groups, national political parties, municipalities and communities of municipalities were the most reluctant ones.

Overall, the main arguments in favour of CCS as portrayed by the press relate to climate change mitigation, business opportunities, jobs generation, the availability of the technology or the alternative future to coal. The role of CCS in climate change mitigation clearly emerges as the main argument to support the technologies. The main concerns deal with costs, safety, risks and the lack of suitable public engagement processes.

Key recommendations from these studies highlight the need to communicate the complex nature of CCS in an appropriate way, with balanced information on its risks and opportunities. In this regard, a neutral and transparent approach to the technology and its contribution to climate protection will be of paramount importance in a possible future discussion of CCS in the media.

In summary, social sciences have already analysed the media portrayed of CCS in a number of EU countries and identified the tone of the articles and the kind of arguments deployed by the main actors in the CCS debate. However, there are still a number of research gaps that we (partially) try to address by means of our media analysis. There is still much to do in terms of comparative research, such as cross-country studies and longitudinal analysis. Other interesting research topic deals with the need to address and compare the local/regional press with the national one. Finally, as far as we know there is no specific evidence on the media coverage of CCS in Spain or France, or Portugal.

This report presents the results from the PilotSTRATEGY press Media Analysis performed in the Ebro Basin, the Lusitanian Basin and the Paris Basin. The Media Analysis started in November 2021 and its findings were due to June 2022.

In line with previous media analysis research on CCS, our main objective is the identification of the type of discourse about CCS that different media sources transmit in each of the studied regions (cross-country analysis). Other objectives include the identification of the different kind of actors involved in the CCS debate, the main arguments underlying the variety of discourses on CCS, and the possible differences among national, regional and local media in each country.

2 METHOD & SAMPLE

Regarding the sampling, in each geographic area (Ebro Basin, Lusitanian Basin, and Paris Basin), national, regional and local newspapers were considered (Table 1). The Ebro and the Lusitanian Basin comprises two different areas (onshore and offshore) while the Paris Basin includes a single one (onshore). The selected time period covered the last 10 years (from January 1st 2011 to September 2021). In the case of Portugal this frame was widened, due to the very small number of articles found (none about CCS in regional and local media).

Type	Spain	France	Portugal
National	El País El Mundo	Le Monde Le Figaro Libération	Público Correio da Manhã
Regional	Diari de Tarragona	Le Parisien	Região de Leiria
Local	Diario de Teruel	La République de Seine et Marne	Região de Leiria Diário de Leiria Jornal de Leiria Jornal Marinha Grande Jornal Oeste O Figueirense O Portomosense O Alcoa Região da Nazaré Região de Cister

Table 1. Newspapers selected per region and type.

In Spain, El País and El Mundo, the two most read generalist newspapers in the first quarter of 2021 (AIMC, 2021), were selected as the national scope newspapers. At the regional/local level, for the Off-shore area we selected the most read regional newspaper (Diari de Tarragona), while for the onshore area we selected the most read local newspaper (Diario de Teruel) (AIMC, 2021).

MyNews was the database used in Spain. The keywords used to search in MyNews database were intended to capture the main discourses around CCS, the arguments underlying such discourses and the key actors involved in the CCS debate, at the national, regional, and local level. Some keywords were common for national, regional and local newspapers (CCUS, CAUC, CAC, Carbon capture, storage and use, Carbon capture and storage, Capture and CO_2, Storage and CO_2, CAC and CO_2) while other keywords addressed specific issues relevant at the local/regional level (CCUS and Risk and seismic, Risk and seismic, Earthquake, CCUS and Earthquake, Capture and storage and risk and seismic; Fracking; Gas storage: Storage and gas; Climate Change: Floods; Oil exploration: Exploration and gas). A preliminary search with all keywords resulted in a very high number of results. Therefore, only those articles explicitly mentioning carbon capture and storage were selected.

In France Le Monde, Le Figaro and Libération, all of them national newspapers, were selected, as they are the most read newspapers in France. Libération was selected as a left-wing newspaper while Le Monde was selected as the more balanced one while Le Figaro is a right-wing paper. At

local level, Le Parisien and la République de Seine-et-Marne were selected in order to understand the difference of CCS representations at different socio-cultural and administrative levels.

The database for the search was Europress and the keywords used for the search were "carbon capture", "carbon sequestration", "clean coal", "risks of carbon capture", 'benefits of carbon capture" and "carbon storage". The search produced a very high number of CCS related articles so only those explicitly devoted to CCS (even if allusively) were selected.

In Portugal, the two most read national newspapers were chosen. One of them, Público, is a quality newspaper, while the Correio da Manhã is a tabloid. For the local newspapers, ten different newspapers were selected. The search was done in every newspapers' website and was complemented with a Google search over the newspaper website. The keywords used were carbon capture and storage (not as acronym, because it is not used in Portugal). The number of articles was very low (zero in the case of local newspapers, with the exception of some articles pertaining to natural carbon storage in agriculture or forests), so there was no need to refine the results. An additional search with the keywords "climate change", "seismic risk", "gas storage", "oil and gas exploration", "underground" "and "caves" was done to complement the document analysis.

As illustrated in Table 2, we coded a total of 278 newspaper articles: 97 in Spain, 129 in France and 52 in Portugal.

Country	CCS coded articles
Spain	97
France	129
Portugal	52
TOTAL	278

Table 2. Number of CCS coded articles per country.

The design of the protocol was an iterative process, inspired by literature on CCS representations in the media (Van Alpehn et al, 2007, Fischedick et al. 2009, Pietzner et al., 2014, Brunsting et al., 2015, Kojo & Innola 2017), as well as previous work on emerging technologies (Schmidt et al, 2014, Oltra et al, 2014, Delicado et al, 2016). Each region made a pilot test with a reduced number of articles to guarantee a common understanding by the different coders, to identify possible weaknesses, and to test the inter-coder reliability. After the first pilot, all partners fine-tuned the protocol and started a new pilot test. This was repeated until the protocol was robust enough.

The protocol was structured in different sections (see Annex 1).

1. Newspaper characterization.
2. Article characterization
3. CCS characterization
4. Additional questions.

Data gathering took place between December 9th 2021 and March 11th 2022. The protocol was adapted to a Google Forms format, offering a collaborative environment for all coders. Results were automatically saved in a shared document. When previously selected articles were not suitable for coding, we registered them in a separate sheet with the title, newspaper and reason for rejection. The analysis of the database was performed with IBM SPSS.

3 RESULTS

3.1 CHARACTERISATION OF ARTICLES ABOUT CARBON CAPTURE AND STORAGE

Firstly, if we look at the country, 47% of the news articles come from France, 35% from Spain and 19% from Portugal. 78% of the coded newspaper articles are from quality newspapers (59% in France, 85% in Portugal and all from Spain), while 22% are from tabloid newspapers (42% in France and 15% in Portugal).

If we observe the number of articles about CCS per year, there are different temporal points of interest (Figure 1). In Spain there is an important increase in the number of articles published in 2016, then the number decreases and rises again in 2020 reaching the same point than in 2015. From 2020 to 2021 we find the biggest increase, from 5 articles to nearly 30 per year. In France, a similar pattern can be observed, but with the increase occurring between 2019 and 2021. In the case of Portugal, the temporal evolution does not seem to be so important. There is a little increase in 2015, in line with the other two countries and yet with an increase in 2021, but with a much lower magnitude.

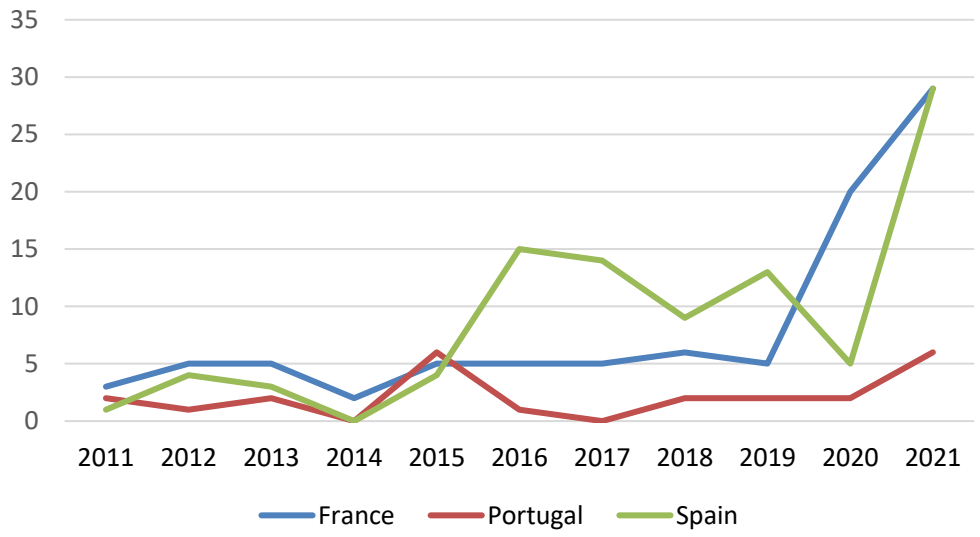

Figure 1. Articles about CCS by year and country

As a preliminary hypothesis, the United Nations Climate Change Conferences (COP 2015 and COP 2021) could at least partially explain the increase of CCS related news articles in the three countries in both years. This needs to be further explored.

The type of article is also classified (Figure 2) as: Detailed report; Short report; Comment/Opinion; Interview; Letter to the editor; Editorial; and Other. The majority of our CCS articles are short reports (61% FR, 56% PT, 44% SP), followed by detailed reports (25% FR, 21% PT, 26% SP). The comments/opinions are found in a significant proportion in Portugal and Spain, while in France are less than a 10%. The number of interviews is considerable in Spain (7%), while the rest of types of articles are not significant.

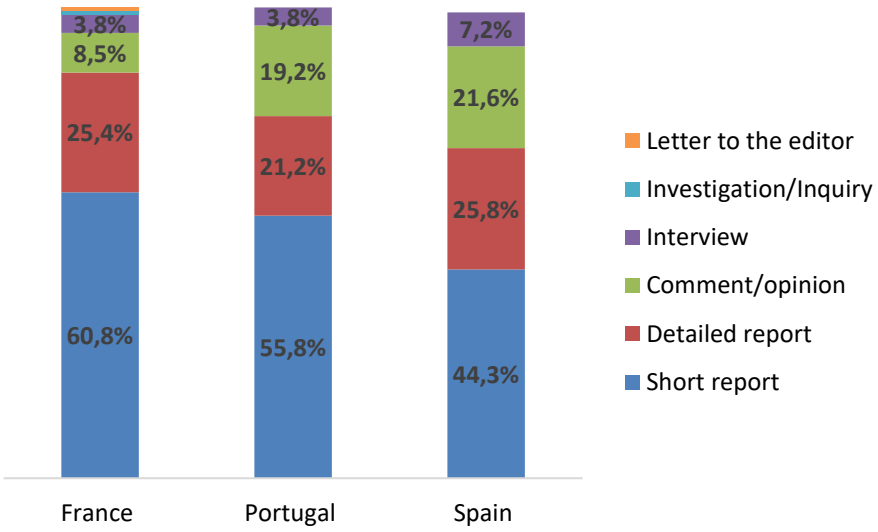

Figure 2. Articles about CCS by type of article and country

Regarding authorship, more than 67% in the three countries are written by journalists, mainly in France and Spain, with more than 70% in both (Figure 3). In Portugal, an important number of articles are written by press agencies, while in Spain more than a 20% of articles are elaborated by academics or experts. In Portugal 12% of articles are written by politicians while in France and Spain politicians only contributed with less than a 2%. Also in Portugal, it should be noted a 6% of articles are written by NGOs representatives.

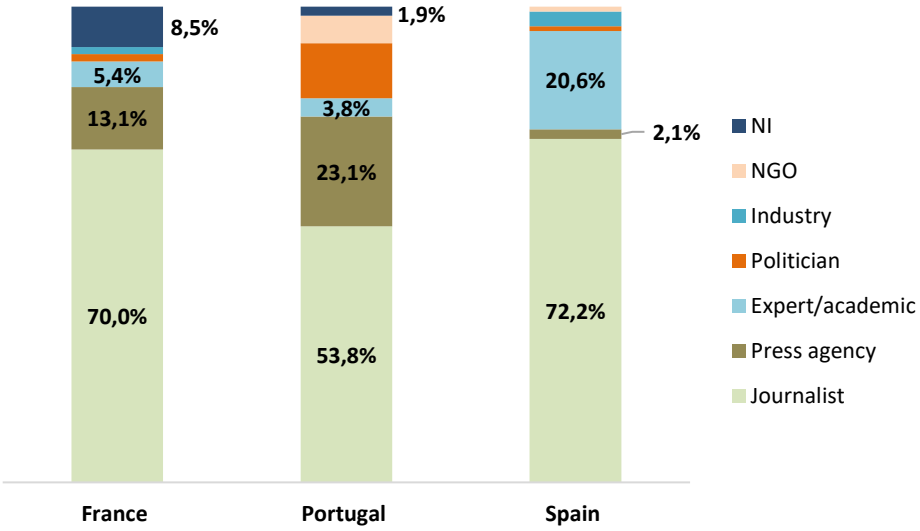

Figure 3. Articles about CCS by type of author and country

Regarding the length of the articles, half of them can be classified as medium (500 to 1000 words). In France and Portugal, a substantial amount of articles (around 30%) are considered as small (under 500 words). On the other hand, Portugal and Spain has a bigger amount of large articles (more than 1000 words) than France (Figure 4).

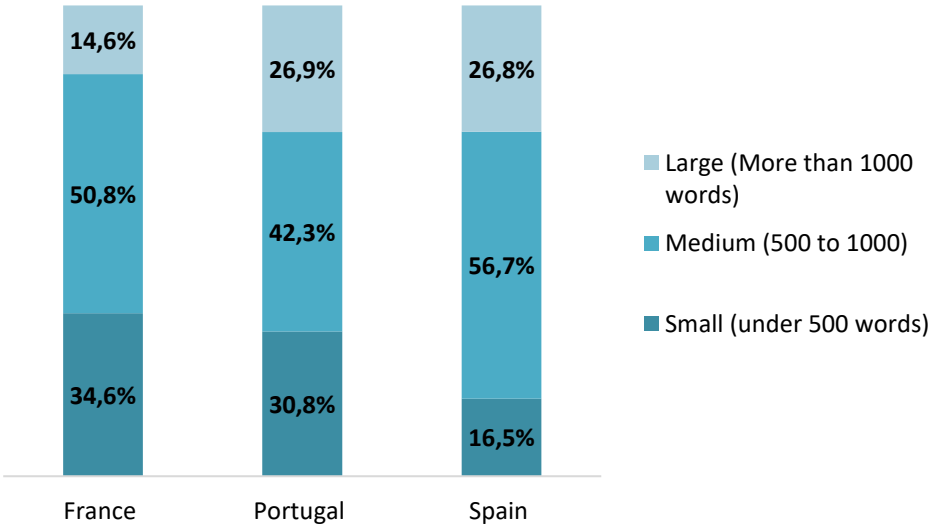

Figure 4. Articles about CCS by length of article and country

3.2 CHARACTERISATION OF CARBON CAPTURE AND STORAGE IN ARTICLES

If we take a look at the general scope of the article (Figure 5) we can observe that most articles, particularly in France and Portugal, address CCS at the international level. Spain stands out by the national focus of half its articles on CCS. In Portugal, there are no articles mentioning CCS at the regional or local levels, since there have been, so far, no concrete proposals for CCS projects, unlike Spain, where close to a fourth of the articles also have a regional scope.

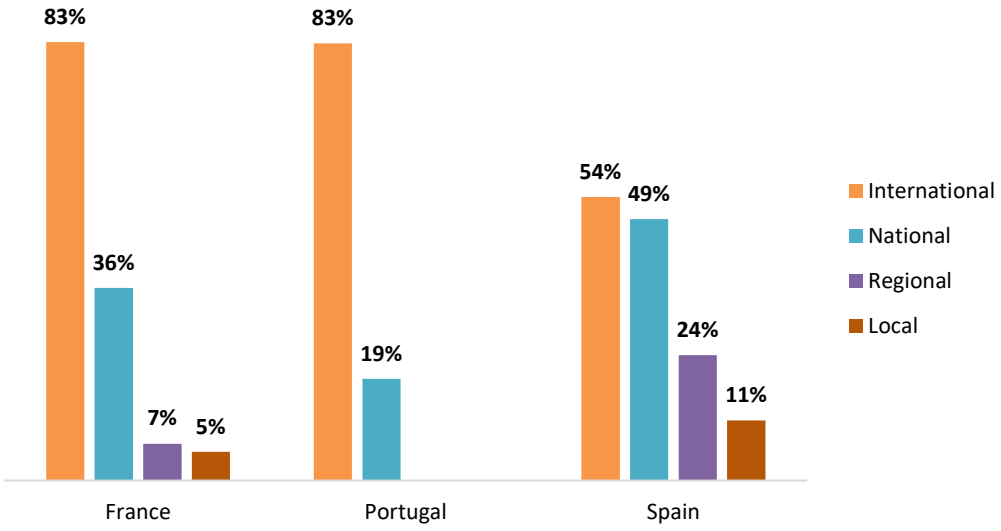

Figure 5. Articles about CCS by scope of article (multiple answers) and country (multiple answers)

Regarding the main actors mentioned in the articles (Figure 6), administration/government take the lead, with around 70% in all three countries. Industry takes the second place, with more mentions in Spain. Third, international organisations, which are found more frequently in French articles. Next, we can find the experts/academia/research, with more mentions in France and Spain. Then, there are NGOs, with France and Portugal leading the mentions. The two next groups, politicians

and public/citizens are especially mentioned in France and Spain. Finally, we can find journalists, with more mentions in France and no mentions in Portugal. Finally, in the others section, Spain has a 14% of mentions.

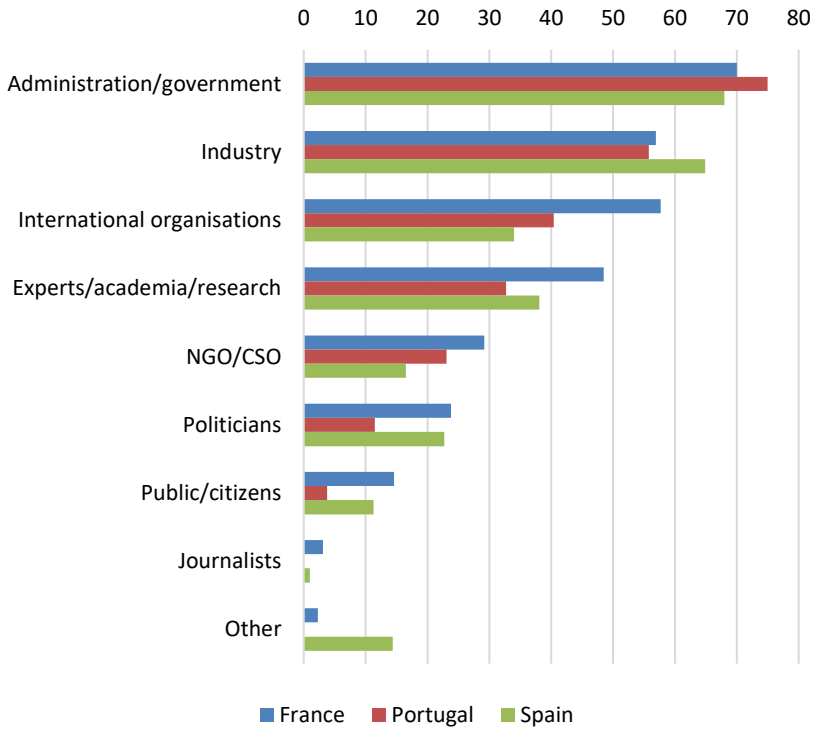

Figure 6. Main actors mentioned in the articles about CCS

A very relevant finding is that the great majority of the news articles (78%) do not mention CCS in the title. In the case of Spain, this percentage goes up even more, reaching a 91% of the coded articles.

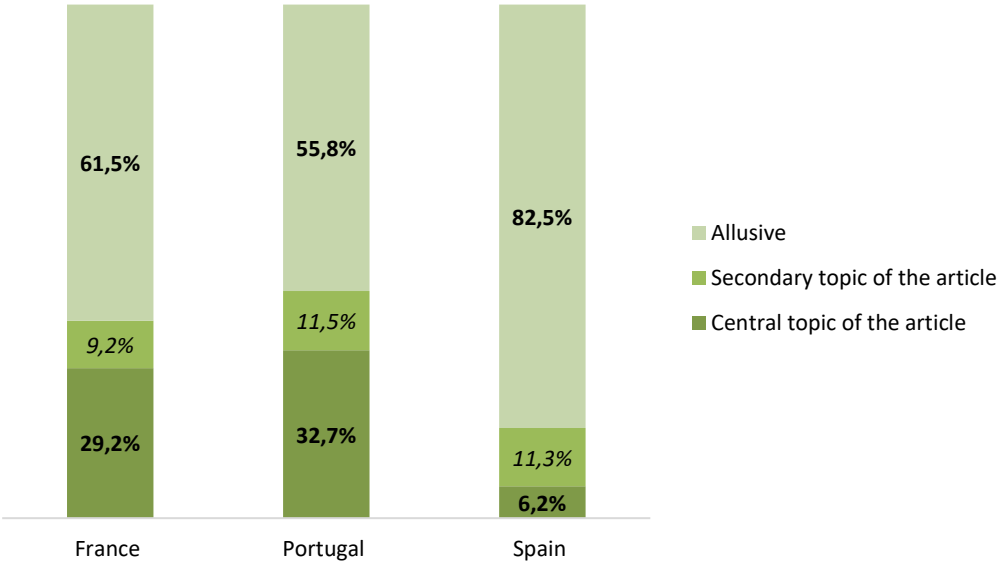

Figure 7. Articles by extent of focus on CCS

It should also be noted that in the majority of articles (68%), the extent of focus of CCS is only allusive, especially in Spain with 83% of allusive articles. CCS emerges as the central topic of the article in around a 30% of the articles both in France and Portugal, while in Spain is only 6% (Figure 7). CCS appears as secondary topic (not the main one) in 9 to 12% of the articles in the three countries.

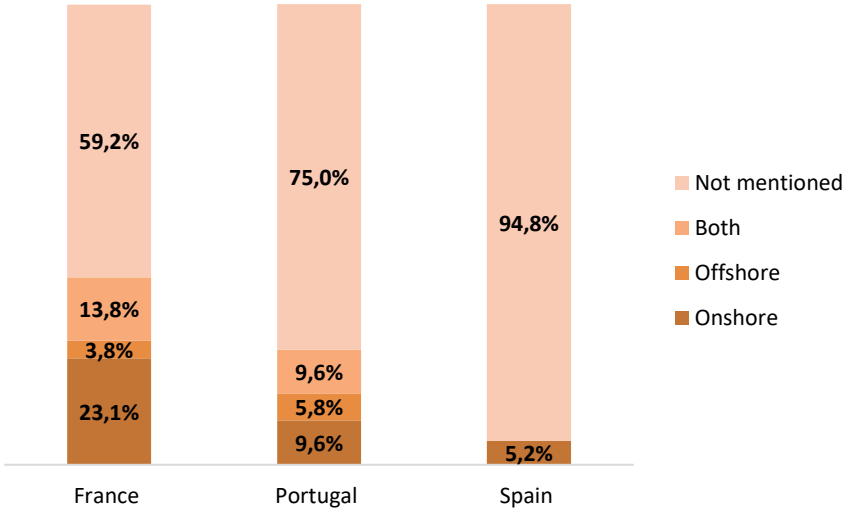

Figure 8. Articles by location of CCS mentioned

In the majority of articles, the location of CCS is not explicitly mentioned, and that is especially relevant in Spain, with 95% of articles not refereeing to any CCS location (Figure 8). In France and Portugal, the location is mentioned more frequently (41% FR, 25% PT). In France, 23% mention an onshore location, followed by 14% mentioning both and only 4% explicitly mentioning an offshore location. In Portugal, 10% mention onshore, 10% both locations and 6% offshore.

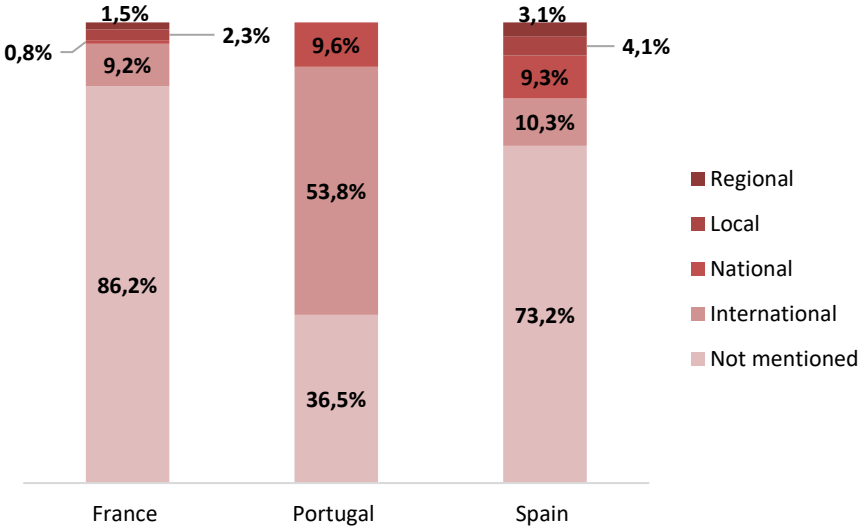

Figure 9. Geographical scope of CCS if explicitly mentioned

The geographical scope of CCS in the cases that is explicitly mentioned, is absent in nearly three quarters of articles across the three countries (Figure 9). Nonetheless, there are important

differences among the three countries. While France and Spain stay in the average, in Portugal the articles where the scope is not mentioned are only 37%. On the other hand, in Portuguese articles, 54% are of an international scope, while it's only a 9 and 10% in France and Spain, respectively. Regarding the national scope there are important differences too. While in Portugal and Spain is nearly 10%, in France is less than a 1%. Local and regional are only mentioned in France and Spain, with percentages lower than a 5%.

Regarding the terminology used to refer to CCS, the most used terms are Carbon/CO_2 capture and storage followed by Carbon/CO_2 capture but with remarkable differences by country. For example, Carbon/CO_2 capture and storage is found in 46% of Portugal's articles and 25% in Spain's and 15% in France ones. Carbon/CO_2 capture is used in 32% in Spain's articles, 16% in France's and only a 4% in Portugal. Carbon/CO_2 capture and sequestration is also used substantially in the three countries, especially in Portugal and France. Other terminology has appeared but is found only in few articles per country. The only one that needs to be highlighted is the use of clean coal in France, with 12% of articles referring to this term.

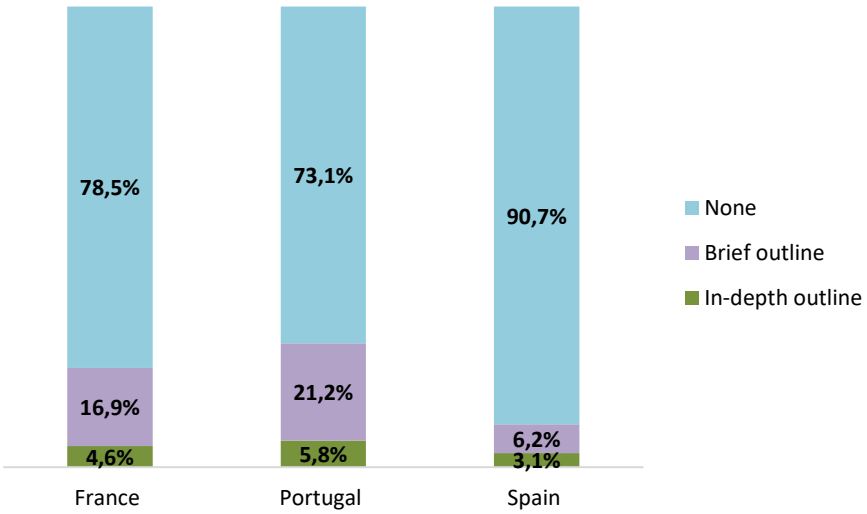

Figure 10. Articles by kind of technical explanation of CCS.

As far as technical explanations in the articles are concerned, the vast majority (82%) do not contain any kind of technical explanation (79% FR, 73% FR, 91% SP). In France and Portugal around a 20% of articles offer a brief outline, and only 6% in Spain. In all the three countries, less than 6% of the articles offer an in-depth outline of CCS (Figure 10).

If we look at the themes in the articles (Figure 11 and Figure 12), we can observe that Climate change, decarbonisation & CCS is one of the most mentioned ones in all the three countries, but mostly as a central topic. CCS and energy is also especially mentioned, as secondary theme in France. CCS research or experiments, new technologies or enhanced processes are also highly mentioned, especially as a central topic in Spain's articles. Information on specific CCS project or site is also mentioned in various occasions, especially in France as a secondary theme. It is also important to show the importance of Challenges, risks and problems of CCS and CO_2 emissions market in the secondary themes of France and Portugal.

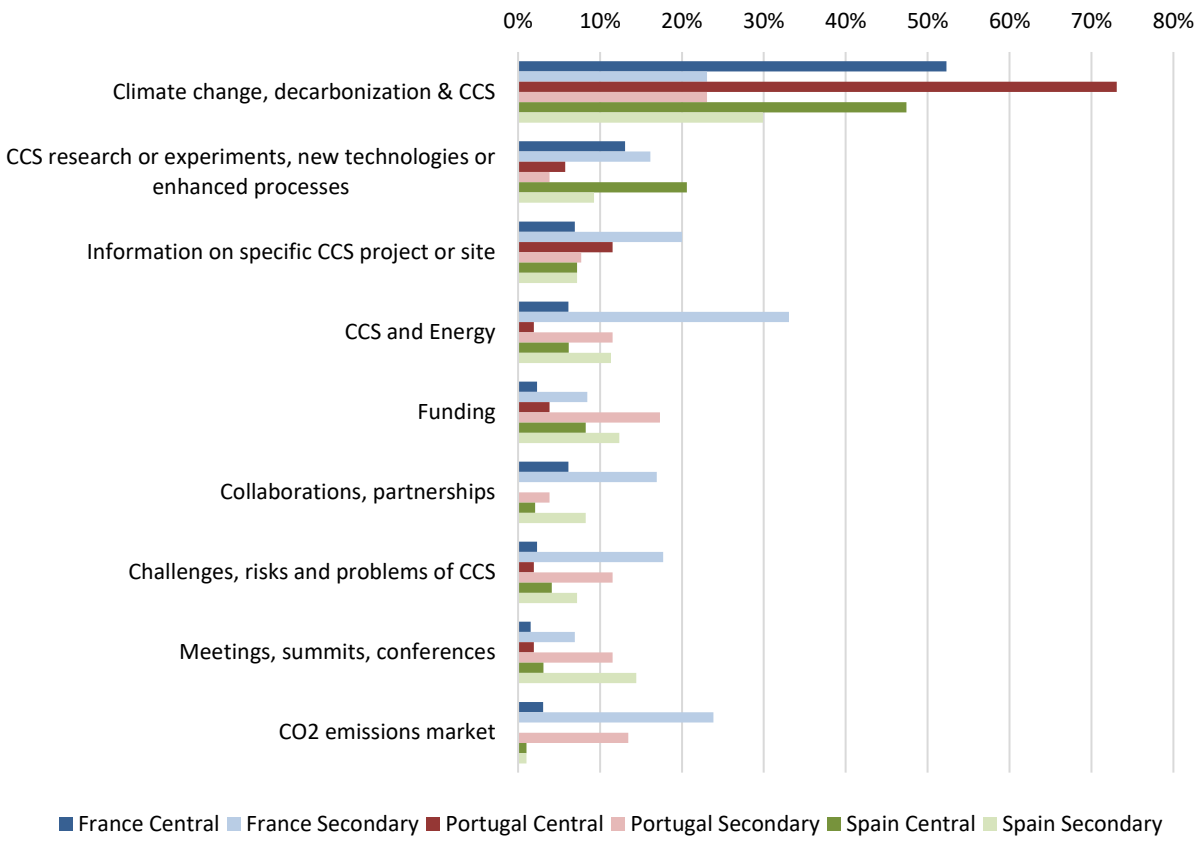

Figure 11. Articles about CCS by themes

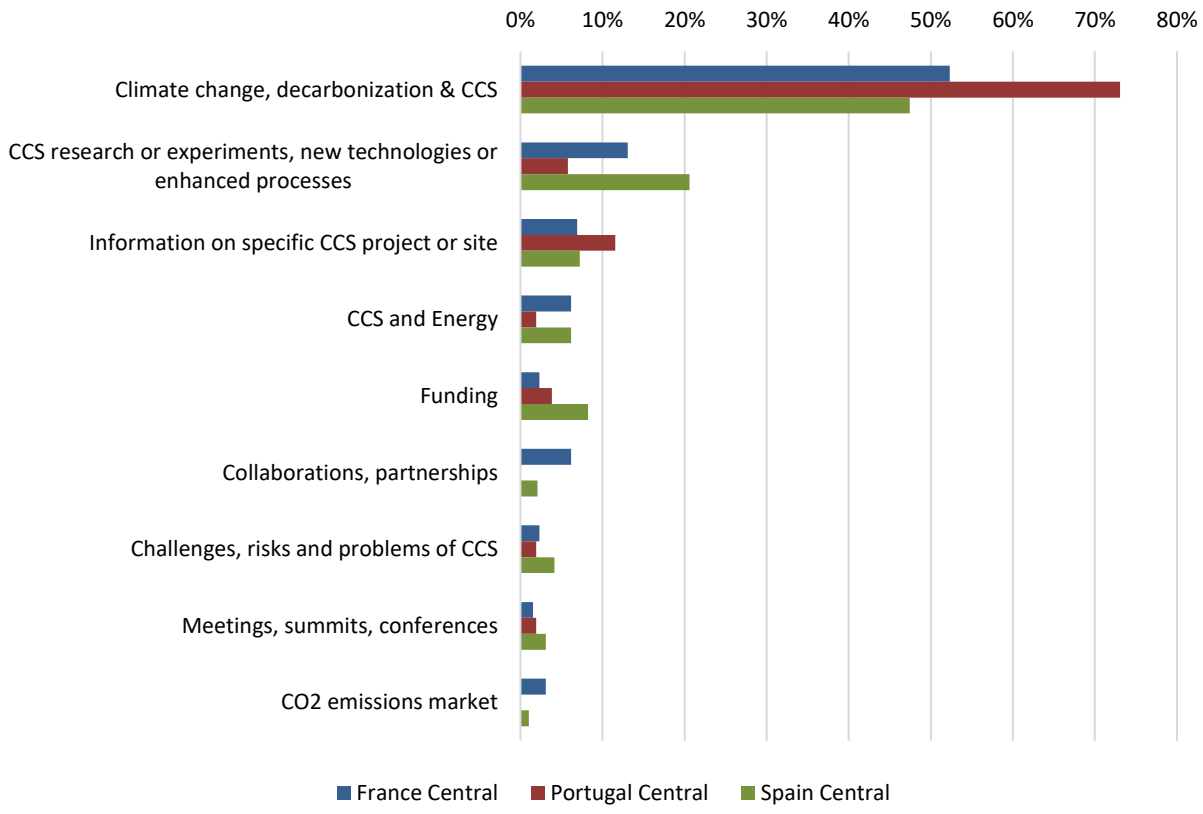

Figure 12. Articles about CCS by central themes

3.3 VALUATION OF CARBON CAPTURE AND STORAGE IN ARTICLES

Regarding the arguments in favour of CCS, we find some relevant results (Figure 13). The most relevant argument in all countries is that CCS Reduces emissions, is climate friendly and mitigates climate change. This argument is found especially in Portugal and Spain. In France we find a remarkable number of articles without favourable arguments (60% FR, 15% PT, 14% SP). It also could be noted that in Portugal, 31% argue that CCS is an important means among others/part of energy portfolio. In Spain, a 24% have the argument that Enables continuing use of coal, coal is cheap/available/efficient. In the local press in Spain, some articles present CCS as a solution to rural problems (depopulated areas). It is also remarkable that a 15% in Portugal's articles says that the Technology already exists/is tested/is in use/is reliable.

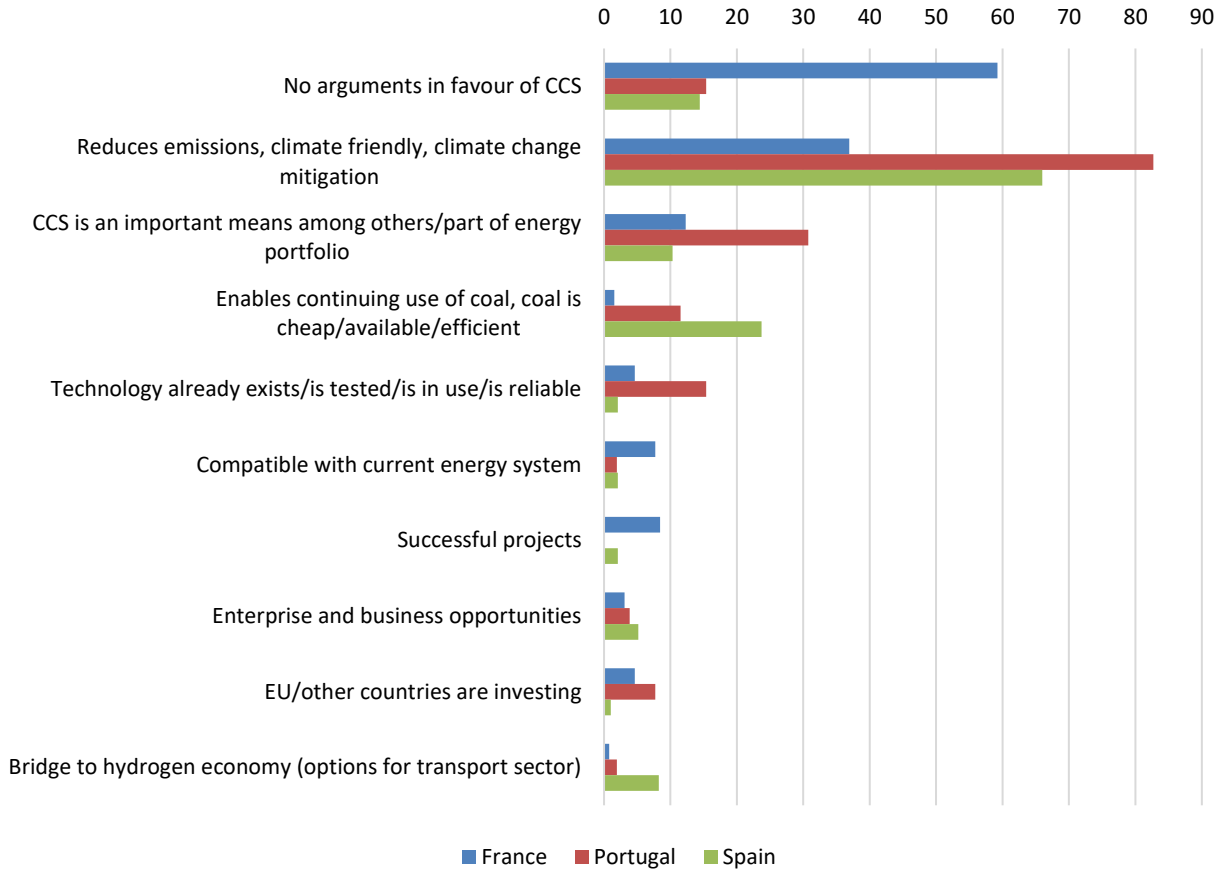

Figure 13. Main arguments in favour of CCS

Regarding the arguments against CCS, in the majority of articles there are no arguments against (Figure 14). This is especially clear in Spain, with 86% of articles without arguments against CCS (61.5% PT, 50% FR). The cost and the fact the CCS is expensive is found in 26% of articles in France, 19% in Portugal and only a 4% in Spain. Another argument that appeared, mostly in France, is that the Technology is still in planning stage, not used, or not ready or proven.

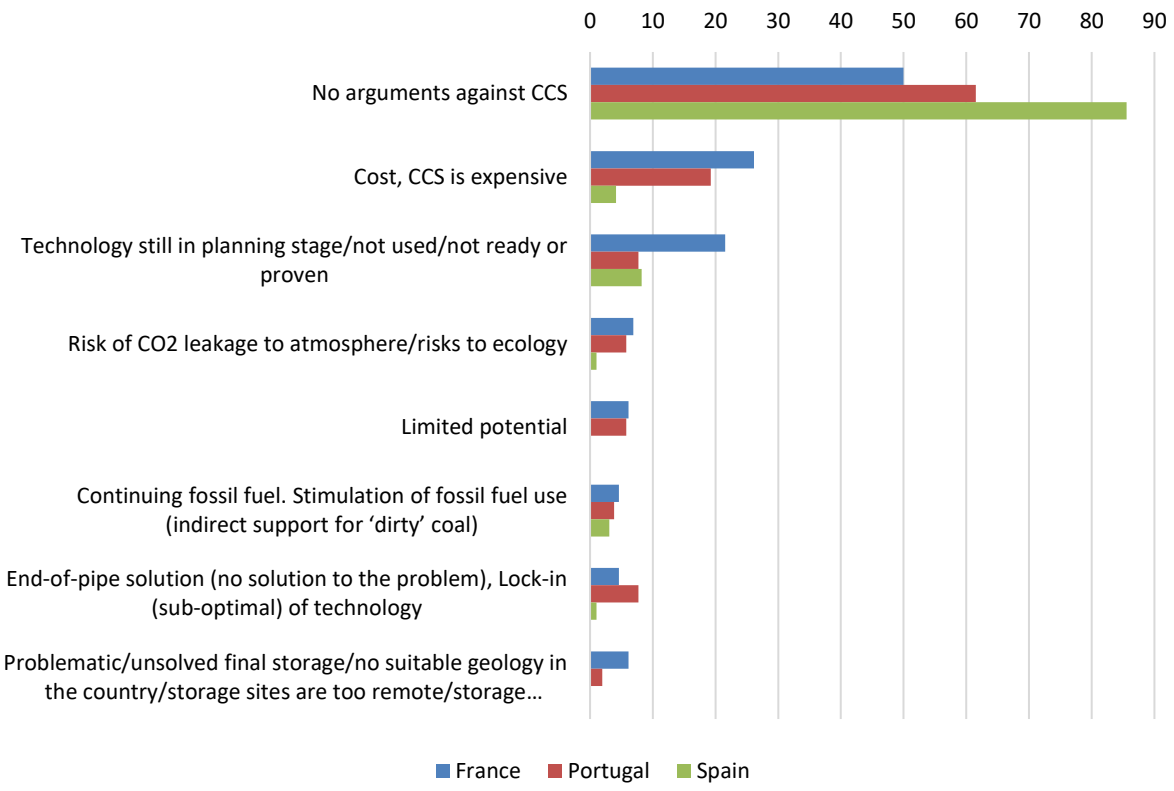

Figure 14. Main arguments against CCS

As to the tone of the article (Figure 15), the neutral and the mixed/balance account almost for 50% in all three countries. Spain shows the most positive one (59% SP, 33% PT, 22% FR). In France we find the most negative articles (26% FR, 12% PT, 2% SP). If we look at the mixed/balanced there is a 17% in Portugal, where in France is a 9% and in Spain a 5%. In the case of neutral articles, in France there are 43% while in Portugal is a 39% and in Spain a 34%.

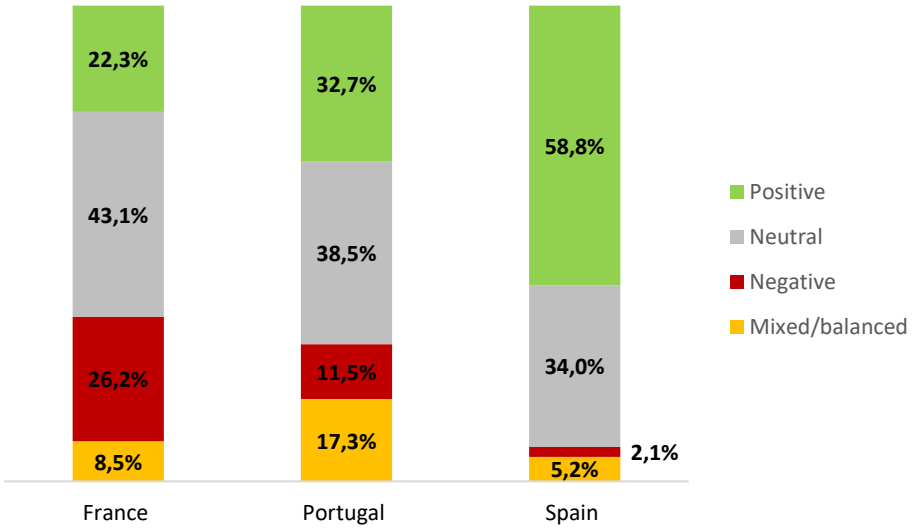

Figure 15. Articles by valuation of CCS and country

It is worth exploring a little more in-depth the valuation of CCS according to some characteristics of the newspapers and the articles. In France and Spain (there were no articles on CCS in regional and local newspapers in Portugal), articles with a positive tone are more frequent in local and regional newspapers, whereas negative articles are more frequently found in national newspapers (Figure 16).

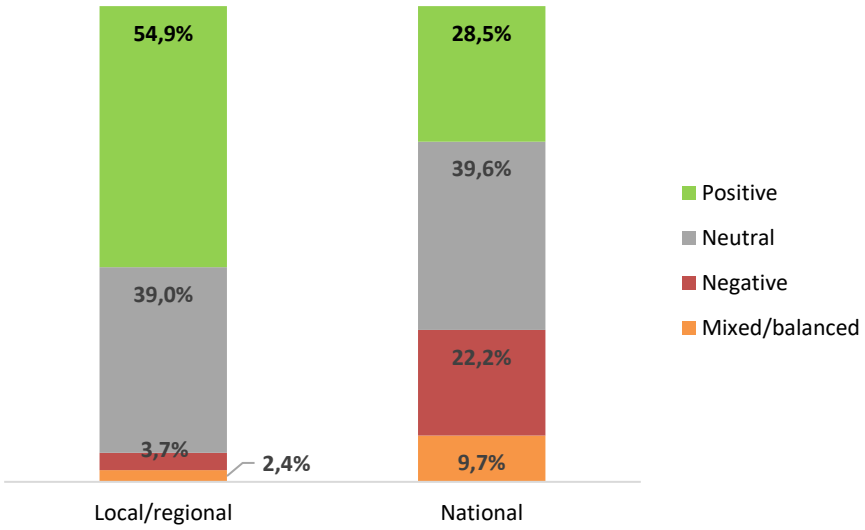

Figure 16. Articles by valuation of CCS and scope of newspaper

Regarding the type of article, a positive tone was found more frequently in interviews, a neutral or balanced one in long reports and a negative again in interviews (Figure 17). As to the type of author of the articles, journalists and press agencies, as well as politicians and experts, favour a neutral or positive tone, business actors a positive one and NGO a negative stance (Figure 18). However, this has to be interpreted with caution, since there are few articles authored by other than journalists or press agencies.

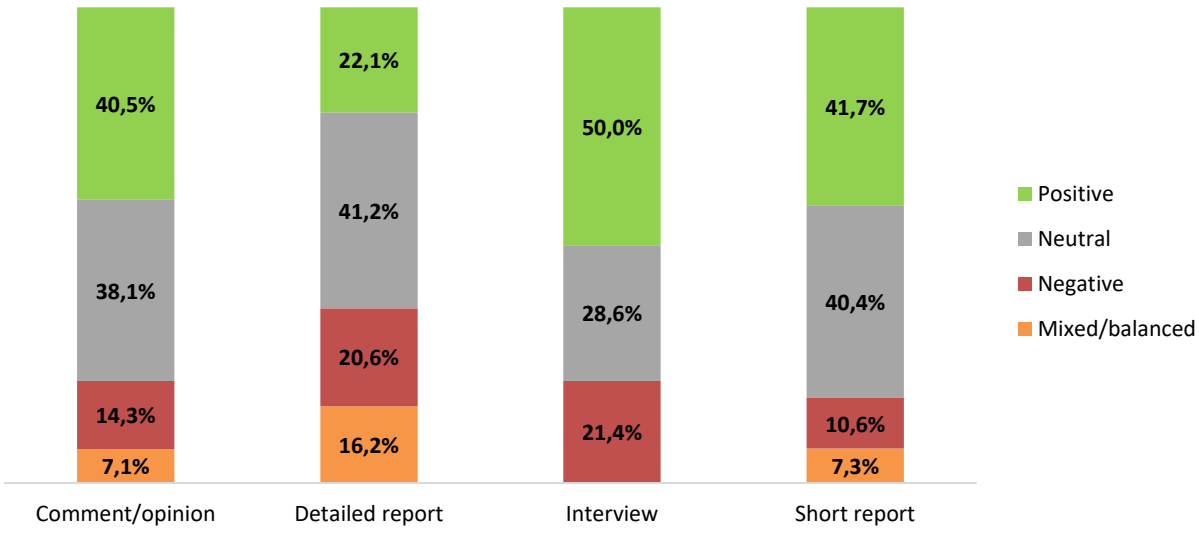

Figure 17. Articles by valuation of CCS and type of article

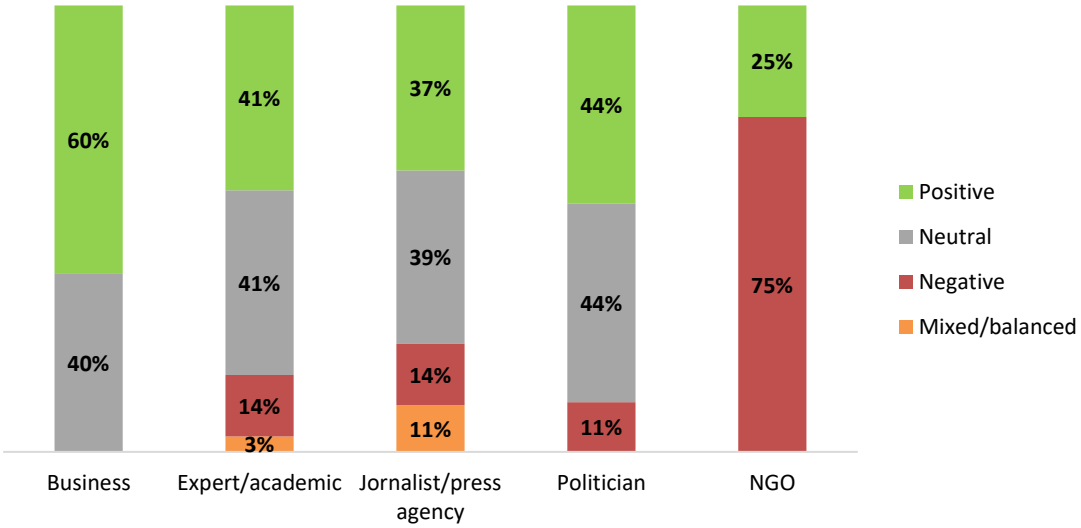

Figure 18. Articles by valuation of CCS and type of author

4 CONCLUSION

In order to investigate the social acceptance of CCS, media analysis can provide relevant information on the representations of CCS the public are exposed to. Our overall objective was to identify and understand the kind of information that the public has access to when searching for CCS in the traditional media (newspapers) in three regions (France, Portugal, and Spain).

In line with previous research on CCS, the main objective of our ***printed media analysis*** was the identification of the type of discourse about CCS that different media sources transmit in each of the studied regions (cross-country analysis). Other objectives include the identification of the different kind of actors involved in the CCS debate; the main arguments underlying the variety of discourses on CCS; and the possible differences among national, regional and local media in each country.

Overall, what we found was that press attention to CCS is higher in France and in Spain than in Portugal. In terms of trends over time, the years 2015 and 2020 show relevant increases in the number of articles in the three countries, which can be partly explained by COP meetings. The length of press articles on CCS is quite small (up to 1,000 words). Formal/institutional actors are more often mentioned in the media portrayal of CCS, in particular administration and governments, industry, international organizations and experts.

CCS is far from being a hot topic in the press: it does not appear in the headlines and most articles only include allusive references (just a few words) to CCS. This is particularly true in Spain. Carbon/CO_2 capture & storage and carbon capture are the terms more frequently used in the media narrative and most articles present no technical explanation about the technologies.

CCS is framed in terms of climate change and decarbonisation (as main topic), and in terms of energy (as secondary topic). The main arguments in favour of CCS are its climate friendly character and its potential for climate change mitigation. CCS as part of the energy portfolio is particularly relevant in Portugal. Most articles do not include negative arguments towards CCS. This is particularly the case in Spain.

Generally, the tone of the press articles is neutral or mixed/balanced with relevant differences among countries. Spanish media show the most positive tone towards CCS, the Portuguese media is more neutral and mixed/balanced, while the French press is more neutral to negative. The overall evaluation by scope of newspaper in Spain and France also shows important differences, with the national and the regional newspapers being more neutral, while the local ones show a more positive tone.

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ANNEX: PRESS ANALYSIS PROTOCOL

NEWSPAPER CHARACTERIZATION

COUNTRY

- ◊ France
- ◊ Portugal
- ◊ Spain

NEWSPAPER

- Name of the Newspaper
  - ◊ El País
  - ◊ El Mundo
  - ◊ Diari de Tarragona
  - ◊ Diari Més Digital
  - ◊ Diario de Teruel
  - ◊ Heraldo de Aragón
  - ◊ O Público
  - ◊ Correo da Manhã
  - ◊ O Portomosense
  - ◊ Le Monde (national)
  - ◊ Le Figaro (national)
  - ◊ Libération (national)
  - ◊ Le Parisien (regional-local)
  - ◊ La République de Seine et Marne (local)
- Type of newspaper
  - ◊ Quality
  - ◊ Tabloid
  - ◊ Not identified
  - ◊ Other

- Scope of newspaper
  - ◊ National
  - ◊ Regional
  - ◊ Local
- Other

ARTICLE CHARACTERIZATION

- Title of the article (without lead)
- Date of publication
- Type of article
  - ◊ Detailed report (Long format article)
  - ◊ Short report (Short format article)
  - ◊ Comment/Opinion (comment opinion signed by the comment author)
  - ◊ Interview
  - ◊ Letter to the editor
  - ◊ Editorial
  - ◊ Other
- Author of the article (Multiple answers in the case of interviews)
  - ◊ Journalist (Identified by name or not)
  - ◊ Press agency
  - ◊ Politician
  - ◊ Expert/academic
  - ◊ NGO
  - ◊ Public/citizens
  - ◊ Other

- Length of article (number of words). Ideally All. Including title and lead Use Sergi software.
- Main theme
- Secondary theme
- Scope of the article (in general): Main geographical focus of the article (might be multiple)
  - ◊ International
  - ◊ National
  - ◊ Regional
  - ◊ Local (Specific project at the national level)
- Main actors mentioned in the article: National/international related to the argument of the article
  - ◊ Industry
  - ◊ Administration/government (National and EU)
  - ◊ Experts/academia/research
  - ◊ NGO, CSO
  - ◊ International organisations
  - ◊ Politicians (not in government)
  - ◊ Journalists
  - ◊ Public/citizens
- Other
- Event triggering the article

CCS CHARACTERIZATION

- CCS mentioned in the article title or lead
  - ◊ Yes
  - ◊ No

- Extent of focus on CCS
  - ◊ Central topic of the article
  - ◊ Secondary topic of the article (1 or 2 paragraphs)
  - ◊ Allusive (1 sentence)
- Location of CCS Explicitly mentioned. Explicitly mentioned (not mandatory)
  - ◊ Onshore
  - ◊ Offshore
  - ◊ Both
  - ◊ Not mentioned
- Scope of CCS if explicitly mentioned: Main geographical focus of the article
  - ◊ International
  - ◊ National
  - ◊ Regional
  - ◊ Local (Specific project at the national level)
- Terminology used to refer to CCS: Exact reference
  - ◊ Carbon/CO_2 capture
  - ◊ Carbon/CO_2 sequestration
  - ◊ Carbon/CO_2 storage
  - ◊ Carbon/CO_2 capture and sequestration
  - ◊ Carbon/ CO_2 capture and storage
  - ◊ Underground carbon/CO_2 storage
  - ◊ Technological carbon skin
  - ◊ Geological carbon/CO_2 sink
  - ◊ Geological carbon/CO_2 storage
  - ◊ Clean coal
  - ◊ Other

- Technical explanation. Article includes technical explanation about CCS?
  - ◊ None
  - ◊ Brief outline
  - ◊ In-depth outline
- Themes related to CCS: Main (single answer - not mandatory)/secondary (multiple)
  - ◊ Climate change, decarbonization & CCS (including reference in a larger portfolio)
  - ◊ Information on specific CCS project or site (Specific locations)
  - ◊ CCS research or experiments, new technologies or enhanced processes (technological experiments)
    - i) Collaborations, partnerships
    - ii) Meetings, summits, conferences
  - ◊ Policy, legal and regulatory frameworks (Including references to carbon roadmaps and policies. Policy documents)
    - i) Funding
    - ii) CCS support or pressure (in favour) (Including awards)
  - ◊ Opposition or protest against CCS (General opposition to CCS and actions (demonstration, petition, etc.))
    - i) Public outreach or engagement (Specific initiatives or projects (related to citizens))
    - ii) Challenges, risks and problems of CCS
    - iii) Alternative solutions/technologies to CCS (Alternative option for decarbonisation)
    - iv) CCS and Energy
  - ◊ CO2 emissions market
  - ◊ Other

- Arguments in favor of CCS
  - ◊ Reduces emissions, climate friendly, climate change mitigation
  - ◊ Enables continuing use of coal, coal is cheap/available/efficient
  - ◊ Enterprise and business opportunities
  - ◊ Job creation
  - ◊ EU/other countries are investing
  - ◊ Technology already exists/is tested/is in use/is reliable
  - ◊ CCS is an important means among others/part of energy portfolio
  - ◊ Consumption of fossil fuels will continue/increase
  - ◊ Usage in bioenergy production is an asset/double capture
  - ◊ Storing of CO2 supports oil industry
  - ◊ Cost-effectiveness (compared with renewable energies)
  - ◊ Successful projects
  - ◊ Well-sealed reservoirs available
  - ◊ Alternative to nuclear
  - ◊ Short-term option
  - ◊ Bridge to hydrogen economy (options for transport sector)
  - ◊ Less dependent on fossil fuel imports (security of supply)
  - ◊ Compatible with current energy system
  - ◊ Answer to growing global fossil fuel demand (India, China)
  - ◊ Other

- Arguments against CCS
  - ◊ Cost, CCS is expensive
  - ◊ Risk of CO_2 leakage to atmosphere/risks to ecology
  - ◊ Leakages to sea/acidification/risks to sea ecology
  - ◊ Human safety/health risks
  - ◊ Environmental impacts
  - ◊ Contamination of drinking water
  - ◊ Visual impact
  - ◊ Concerns with safety/security
  - ◊ Problematic/unsolved final storage/no suitable geology in the country/storage sites are too remote/storage surveillance is not reliable enough/ Uncertainty about reservoir behaviour
  - ◊ Technology still in planning stage/not used/not ready or proven
  - ◊ Not profitable/deployable in decades
  - ◊ Lessens plant efficiency/requires more energy
  - ◊ CCS plants cannot function without public funding, government support needed
  - ◊ CCS is unpredictable/more research needed about safety issues
  - ◊ Raises costs of production/electricity/ energy penalty (Installing capture technology will make products or electricity more expensive)
  - ◊ End-of-pipe solution (no solution to the problem), Lock-in (sub-optimal) of technology (Cutting corners).
  - ◊ Threat for renewable energy/energy efficiency
  - ◊ Continuing fossil fuel dependency, Stimulation of fossil fuel use (indirect support for 'dirty' coal)
  - ◊ Uncertain public acceptance
  - ◊ Responsibility issues (Who takes the blame (responsability) in case of accident)
  - ◊ Against principle 'polluter pays'
  - ◊ Spatial planning problems (well drilling)
  - ◊ Seismic effects
  - ◊ Limited potential (Only a small % of CO2 taken from the atmosphere)
  - ◊ Other

- Tone of the article/valuation of CCS. Article includes explicit valuation of CCS
    - ◊ Positive. Includes positive explicit valuation
    - ◊ Negative. Includes negative explicit valuation
    - ◊ Neutral. Does not include Explicit evaluation
    - ◊ Mixed/balanced. Includes both positive and negative arguments

ADDITIONAL QUESTIONS

- Comments by readers (y/n): only relevant if it is an in-depth report on CCS
- Additional comments
- Potential names for interviews


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