FIGHT TO WIN

THE CLIMATE IMPACT OF THE PORTUGUESE FOSSIL-FREE MOVEMENT

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Executive summary

The fossil-free movement in Portugal has managed to prevent approximately 10 thousand tons of CO2 emissions in the last two years, due to cancellations and postponements of the oil and gas contracts. Although as yet incomplete, the incredible success of a militant and dedicated movement deserves praise, political as well as numerical. The authors intend to contribute to the latter.

This essay compares two possible emissions scenarios in Portugal: the business-as-usual energy policy and the current situation greatly influenced by public opposition. We start by presenting the oil and gas contracts as well as the successful intervention of the fossil-free movement. We then calculate the climate impact of this movement in terms of emissions prevention.

Our main conclusion is that participating in the popular struggle against oil and gas projects is arguably the most efficient emission reduction strategy for each Portuguese person: the prevented emissions amount to 75% of annual emissions per activist, a value much higher than in any other strategy.

The authors are indebted to all the fossil-free organizers across the country and wish to thank all the organizations and activists involved in this struggle.

Introduction

In the last few years, oil and gas projects in Portugal have been strongly challenged by social movements and local populations. Of 15 contracts that were active in 2015 (with some of them signed only a few days before the national elections which took place on the 4th of October that year), only 5 remain in 2018. While there is still an imminent threat, it can be confidently stated that the fossil-free movement in Portugal, remarkable for its recency and level of mobilization, has had several partial victories.[1]

While the arguments against oil and gas projects are diverse, in this short essay we would like to reflect on the climate impacts. As mainstream ecological footprint accounting considers only lifestyle choices and therefore reduces humans to consumers, we adopt a different approach and include political action of ordinary people as a valid and necessary pathway to an energy transition.

More concretely, we will estimate the carbon emission reductions linked to social mobilization. We will calculate the possible emissions from these oil and gas projects if they had gone ahead and compare this value with the movement's efforts.

Before we start, a word of caution. Firstly, since it is not yet known if there are any large quantities of oil or gas in the Portuguese territory, our estimates will rely on possibly--exaggerated corporate propaganda. Secondly, some contracts were cancelled because they had expired and the government chose not to renew them, while others were cancelled before their expiry date. The questions of whether the companies hesitated to move forward due to social opposition or whether it was merely due to internal economic analysis are rather subjective. While the influence of social movements is clear (as there was no *a priori* political or economical reason not to renew the contracts), it is hard to crystallize their role in interaction with other business priorities. Thirdly, there is the question of what constitutes "the movement." While the role of the organizers is indispensable and the mass support to the cause crucial, it is hard to quantify the number of people involved. To summarise, the authors admit the uncertainties and methodological difficulties of this exercise (while we do insist that our approach is still more scientifically accurate than the out-of-thin-air declarations of the fossil fuel industry about the potential reserves in Alentejo). However, we value this attempt to politicize climate action for its discursive importance if not yet for its mathematical rigour.

1 This movement is generally referred as an anti-oil (and anti-gas) struggle. This is an understatement as virtually all the groups emphasize the need for a speedy transition to renewable and decentralized energy. A large majority of these groups are not only against these projects, but also strongly advocate for a sustainable energy system. However, the word "fossil-free" does not translate well to the Portuguese language and it should be noted that the struggle is indeed focused on oil and gas extraction projects and not on the fossil fuel infrastructure as a whole. While there are different degrees of critiques towards the fossil fuel industry within the movement, the mass protests on the subject have been climate marches. We will hence use fossil-free to describe the movement throughout the text.

§1. Context

In early 2015, when the oil and gas projects entered into public awareness, particularly due to the contracts active in the Algarve region, there were a *total* of 13 areas contracted to the fossil fuel industry, 11 of them on the coast and 2 inland. Then in September 2 more onshore contracts were signed, covering roughly half of the Algarve region. Even though there were several pioneering groups working on the issue before this date, at least as far back as 2012, we can safely say that the opposition to oil and gas extraction reached a critical scale only in 2015. For our comparison, we will therefore take this year as the baseline.

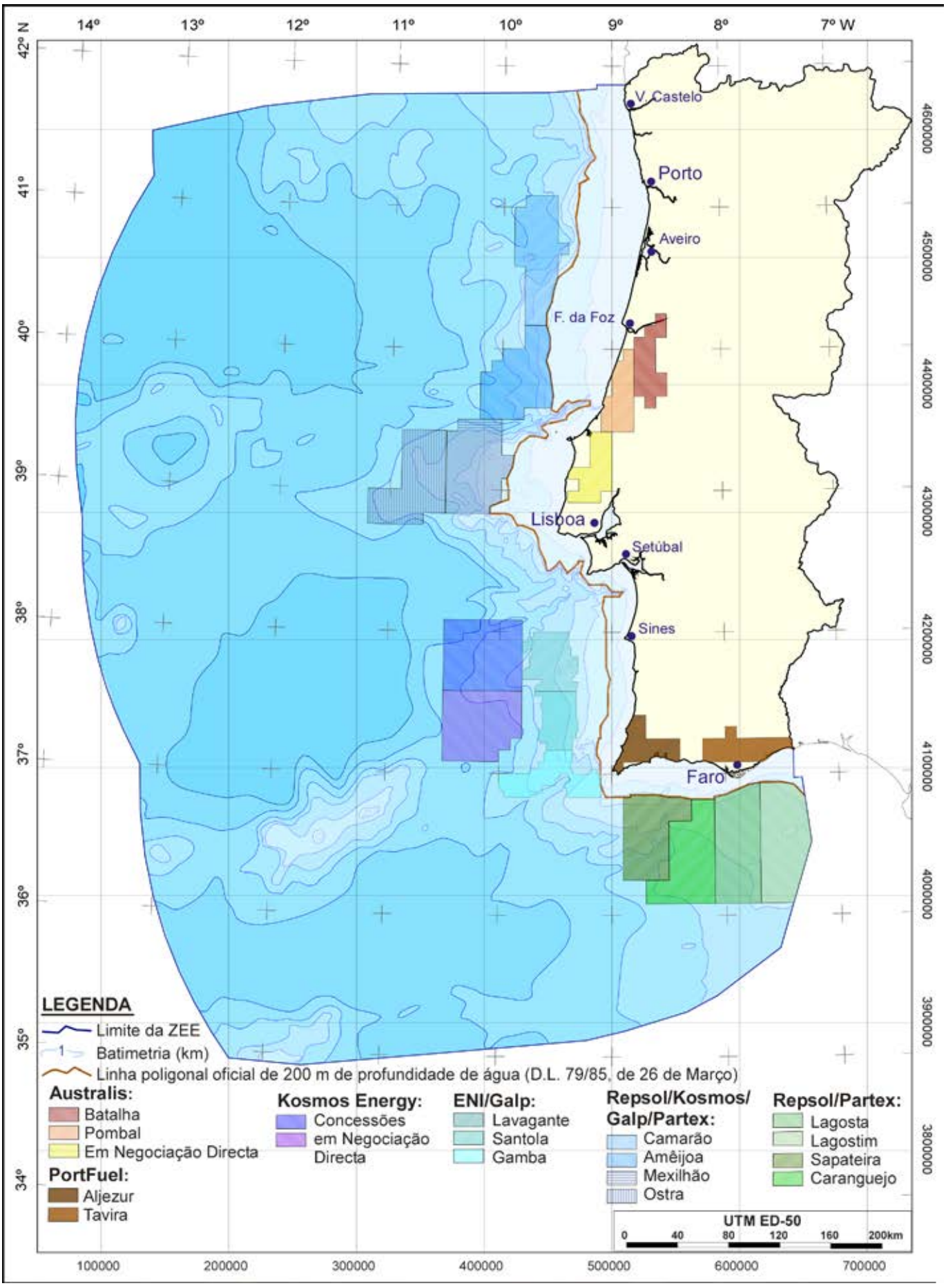
We are also not considering the other areas of potential exploration that were in the direct negotiation stage. As there was no social challenge directed at these projects, we make the reasonable and conservative assumption that these projects were not realized due solely to economic reasons.

By 2016, oil and gas projects in the Algarve had become a major national topic, with several new activist groups forming all across Portugal. More local groups were formed in the Alentejo and in the "Zona Oeste" (West Coast, North of Lisbon and South of Oporto, where there has been oil and gas prospection since the first half of the 20th century, and where two onshore concessions are currently still active). As we will analyse in detail below, some contracts were cancelled before due date, and others were simply not renewed. At this point, it is important to note that in the government's electoral programme of 2015 there was no reference to the future of these projects. Neither the Socialist Party nor the minority government agreements with the left-wing parties included any agreement to cancel of not renew the contracts. Furthermore, for the last ten years it was common practice of PS- and PSD-led governments (the two major political parties) to renegotiate and extend such contracts. Therefore, we have every reason to believe that the fossil-free movement had a decisive influence in the cancellation of these projects.

Figure 1 and Table 1 show the situation as it stood in late 2015, with 15 active contracts and 3 others in direct negotiation.

CONTRACT	AREA	CONCESSIONARY	DATE OF 1ST EXPECTED DRILL
Aljezur Tavira	Algarve, onshore	Portfuel	No data, but preliminary, unlicensed well drilled in Spring, 2016
Lagosta Lagostim Sapateira Caranguejo	South of the Algarve coast, offshore	Repsol/Partex	~2016
Camarão Ameijoa Mexilhão Ostra	West coast, north of Lisbon, offshore	Repsol/Kosmos/ Galp/Partex	~2018
Batalha Pombal	Onshore, west, south of Oporto	Australis	Early 2019
Lavagante Santola Gamba	Southwest coast, offshore	Eni/Galp	Summer of 2016 - delayed

Table 1 – List of all active contracts in the Fall of 2015. Currently only the bottom 5 remain active. The last column shows the dates when the first major exploratory drills were expected to occur. See also Fig. 1.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V. Castelo
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Aveiro
F. da Foz
Lisboa
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Sines
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3900000
3800000
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200000
300000
400000
500000
600000
700000
LEGENDA
Limite da ZEE
1 Batimetria (km)
Linha poligonal oficial de 200 m de profundidade de água (D.L. 79/85, de 26 de Março)
Australis:
Batalha
Pombal
Em Negociação Directa
PortFuel:
Aljezur
Tavira
Kosmos Energy:
Concessões
em Negociação
Directa
ENI/Galp:
Lavagante
Santola
Gamba
Repsol/Kosmos/
Galp/Partex:
Camarão
Amêijoa
Mexilhão
Ostra
Repsol/Partex:
Lagosta
Lagostim
Sapateira
Caranguejo
UTM ED-50
0 40 80 120 160 200km

Figure 1 – Active contracts at the end of 2015 (4 onshore and 11 at sea), with three more areas shown which were in direct negotiation (1 onshore, north of Lisbon, yellow, and 2 in the southwest coast, being negotiated with Kosmos Energy). Only 5 of these are currently (spring 2018) active, namely: Batalha, Pombal, Lavagante, Santola and Gamba. See also Table 1. Source: ENMC. Note that the legend for the Batalha and Pombal concessions is wrong (Batalha should be Southwest of Pombal) as it has been in all the official maps distributed by ENMC, the entity *supposedly in charge of supervising the whole process*, in the last two and a half years.

The first two contracts to be cancelled were the onshore ones in the Algarve, at the end of 2016. The outrage of large parts of the population reached an all time high when Portfuel, a company created purposefully for the purpose of exploring these contracts, was caught in the Spring of 2016 trying to drill an exploration well without the proper license, claiming that it was a water well instead.

The next four to be cancelled were the offshore ones in the south of the Algarve. In this case, the Government refused to renew Repsol and Partex's license, claiming the non-fulfilment of contractual obligations. However, the main cause for this was surely public pressure, since until then these licenses had been renewed year after year without any hurdles. In both cases, the cancellation of these contracts were carried out by the government in a very low key fashion and for many months the groups within the fossil-free movement were unsure if they had been cancelled or not. This was almost certainly a strategy by the government to attract as little media attention as possible to the victories obtained by this movement.

A similar situation occurred with the four offshore contracts in the west coast, north of Lisbon, which dropped from the list of active concessions by the end of 2017, without any single public statement as to why this happened. Galp then tried to keep the northernmost concession, Gamba, for itself alone, but the government has apparently rejected this claim. In all cases the companies involved protested vehemently against the cancellations, claiming these were "populist" and "anti-business" measures. Sousa Cintra, CEO of Portfuel, famously claimed: "Whenever anyone shows up wanting to make an investment, people of bad faith will also show up. I even lose the urge to do anything in this country and just leave. I get really upset over this."

As for the 2 remaining onshore contracts, the concessionary is currently Australis which plans to make its first exploratory drill in the beginning of 2019. At the time of writing the Portuguese Environment Agency (APA) has decided that the information supplied by Australis regarding this operation was highly flawed and incomplete. This prompted the Environment Minister in turn to announce that the licensing process must now be restarted from scratch. There is thus currently a high level of uncertainty as to what will happen next, the only certainty being that the contracts remain active. These contracts have received only a small fraction of the attention given the ones in the south, particularly since there are few active groups, as well as very little history of popular engagement in similar struggles in this region, when compared to the Algarve. Nevertheless, a movement has also been building in the region, particularly in recent months.

The three concessions off the south-west coast have been vehemently contested by local populations, environmental groups and regional government authorities. Since tourism in particular, but also fishing, are economic activities crucial to the region, even the business community has come out overwhelmingly against oil exploration in the area. Nevertheless, the government continues to back these 3 concessions unrelentingly.

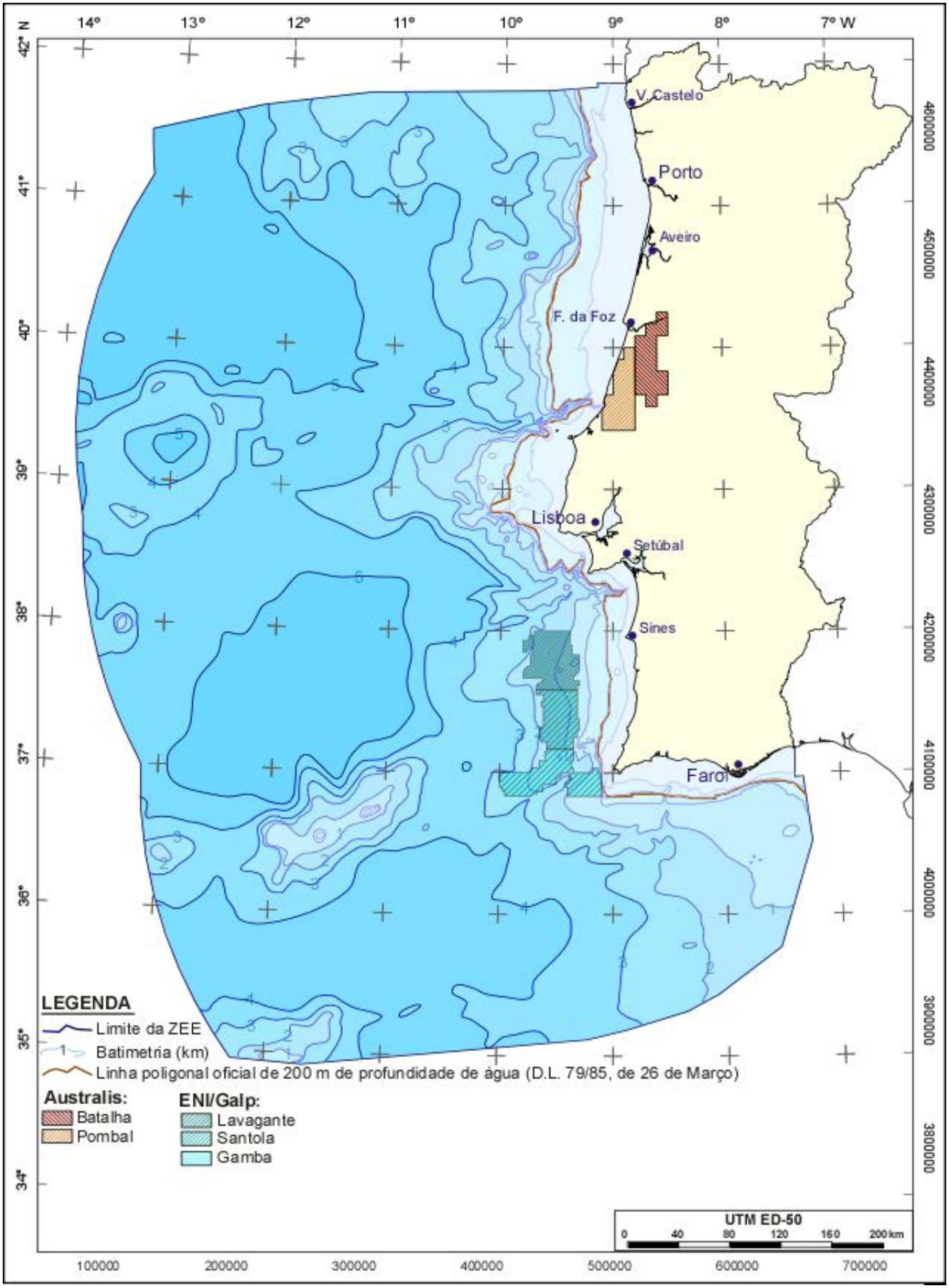

Figure 3. Active contracts in July 2018.

The first exploration drill was planned to take place in the summer of 2016, the same year in which there was a peak of public protests against this activity in Portugal. The two companies aimed at drilling a prospection well 46 km from the shore of Aljezur, at a sea depth of 1070 meters and then drilling another 2.5 to 3 km under the sea bed, off one of the most pristine coasts in Europe, which include many protected areas. More than 42000 people expressed themselves against this, in a public consultation regarding the license to drill this well. Nevertheless, the relevant authorities overlooked all their arguments and the license was still granted. In the beginning of 2018 the license was extended for another full year, even though there are at least three legal challenges still to be tried in court all claiming this activity could have dire consequences for the region.

§2. Calculations

Due to the Portuguese fossil-free movement that has grown in the last three years, the Aljezur prospection drill has already been delayed by two full years. The concessionaries now plan to begin drilling in late September, early October of 2018. In what follows we look at the direct carbon impacts of this activity and try to estimate the level of CO2 emissions already prevented by the anti-fossil fuel movement in Portugal due to this delay.

We will assume a value of 1500 million barrels of oil, which is what the concessionaries claim to be the potential size of the reserve, even though this may be widely exaggerated. A Hubbert curve is here considered, a reasonable approach widely used in the study of extraction rates of non-renewable resources, with a lifetime of 40 years and reaching its production peak in 2040, as shown in Fig. 2.

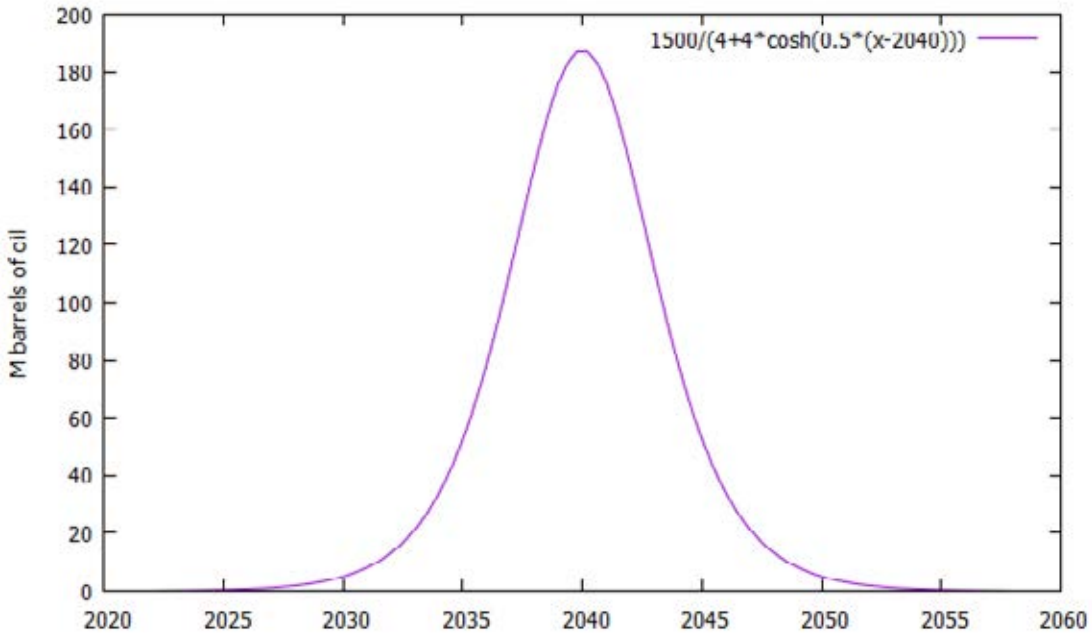

Figure 2 – Hubbert-type curve, assuming a total reserve size of 1500M barrels of oil, with production starting in 2020 and the peak in the extraction rate occurring in 2040. Lifetime of 40 years was assumed, considering similar offshore reserves in the Gulf of Mexico (Greenpeace, 2016).

In Table 2 we also show the exact number of barrels of oil which would be extracted in each year, following this symmetrical Hubbert-type expression, and their associated CO2 emissions. For the latter we assumed a factor of 0.11 tonnes of CO2 per barrel of oil, as was considered for comparable offshore oil reserves in the Gulf of Mexico (Greenpeace, 2016). We note however this is a very conservative emissions factor, which only accounts for direct emissions related to oil extraction, so as to provide us with a lower bound.

YEARS	M BARRELS / YEAR	CO2 (M TON)/YEAR
2020, 2060	0.034	0.003744
2021, 2059	0.0561	0.006174
2022, 2058	0.0925	0.010178
2023, 2057	0.1525	0.016775
2024, 2056	0.2514	0.027654
2025, 2055	0.4143	0.045573
2026, 2054	0.6827	0.075097
2027, 2053	1.124	0.12364
2028, 2052	1.85	0.2035
2029, 2051	3.04	0.3344
2030, 2050	4.986	0.54846
2031, 2049	8.15	0.8965
2032, 2048	13.25	1.4575
2033, 2047	21.34	2.3474
2034, 2046	33.88	3.7268
2035, 2045	52.56	5.7816
2036, 2044	78.75	8.6625
2037, 2043	111.9	12.309
2038, 2042	147.5	16.225
2039, 2041	176.3	19.393
2040	187.5	20.63
TOTAL	**1500**	**165**

Table 2 – Numerical values corresponding to Fig. 2 and the Hubbert-type curve considered in this work. Second column shows millions of barrels of oil extracted per year, assuming a peak in 2040 and a lifetime of 40 years for the oil field. Third column gives associated CO2 emissions, using an emissions factor taken from comparable Gulf of Mexico offshore oil reserves.

Even with this very conservative emissions estimate, delaying the start of this new hypothetical oil exploitation for a period of 2 years means that a total of ~9800 tonnes of CO2 emissions may already have been prevented.

It is essential to highlight that this value (~9800 tonnes of CO2) refers only to one of the four contracts that have disappeared since 2015. The Algarve onshore contracts (Portfuel, cancelled before deadline), the Algarve onshore contracts (Repsol/Partex, disappeared before deadline), and the West coast onshore contracts (Repsol/Kosmos/Galp/Partex, not renewed despite Galp's request) are not included in the calculations. Although it is possible to extrapolate from geological data and existing reserve to deduce estimates for these areas, we acknowledge the big margin of error in such an exercise. More importantly, as mentioned above, we find the fossil fuel industry's estimate for the Aljezur drill exaggerated. In terms of emission prevention, the other successful contract cancellations can compensate for this error.

Note also that the *total* value of CO2 emissions associated with this enterprise (165M tonnes, see Table 2) would be, even with this extremely conservative emissions factor, equivalent to roughly two and a half years of *total* GHG national emissions (67.6 M tonnes CO2eq in 2016, according to APA, 2018). And what impact would it have in terms of global oil supply? In 2018, according to the IEA, global oil consumption stands at close to 100 M barrels per day. So, this reserve would serve global needs, at current levels, for exactly 15 days, hardly an impressive figure.

§3. How effective is climate activism?

Our next question is: *who* made this happen?

Taking into account several declarations by the fossil fuel industry, and the fact that the Socialist Party had no action plans in its electoral manifesto, it is clear for us that the fossil-free movement played a determinant role in the cancellations and delays. At this point, we would like to further highlight the government's aggressive advocacy for the oil and gas projects, voiced by the Energy State Secretary, Minister of the Sea, Minister of Environment, Minister of Foreign Affairs and even the Prime Minister himself.

In short, the fossil-free activists made this happen.

By fossil-free activists, we mean the ordinary citizens who take action against these projects.

Given the geographical and political diversity of the fossil-free movement with 15-20 local groups together with national organizations, we estimate the "organizers" of this movement to be around 50-100 people. These are the people that organize actions, events, debates, petitions and mass protests.

Then, there are hundreds of people who are involved in the struggle without organizing it. The biggest objective count would be the 42 thousand people who signed the petition against the Aljezur drill licence, but we understand that while these petitioners do support the cause they are not necessarily mobilized for it. Since 2016, there were four climate marches in Portugal with a strong focus on the oil and gas contracts. Each one of these marches had more than 500 participants nationally, with mainstream media reporting 2 thousand for the most recent march against the drill, which took place in Lisbon, April 2018.

The round and reasonable estimate for the fossil-free activists in Portugal would thus be 1000 engaged people in total.

These 1000 people prevented 9800 tons of CO2 emissions in a period of two years. Each of them therefore has already prevented 9.8 tonnes of CO2 in 2 years, or 4.9 in one year, which is close to the national annual average emissions of 6.5 tonnes/year, assuming 2016 values from the Portuguese Envrionment Agency (APA, 2018).

In other words, in the last two years, each activist had a 75% personal emission reduction in comparison to the business-as-usual scenario.

Compare this with individual lifestyle choices: a vegan person in any city of Portugal who never buys clothes, who shares a house with several people, who never uses heating, who uses only public transport and that only for going to work, who never travels for holidays could achieve in the best case 2-2.5 tonnes of annual CO2 emissions. Hence lifestyle choices of a puritan "Franciscan" degree mean emission cuts of 60-70% for an average person.

The reason for the relative inefficiency of individual acts is the embedded pre-decisions made by the socio-economic system. By addressing the structural and political side of the issue, fossil-free activists not only prevented an enormous amount of greenhouse gas emissions, but also built a movement that can achieve much bolder goals for a just energy transition.

§4. Conclusion

The conclusions we derive from these calculations are two-fold: (1) Social movements are capable of delivering incredible results. (2) Participating in social movements can be much more effective than lifestyle choices.

Even partial victories like delays in new infrastructures have a significant impact on the emission pathways, as they represent very strong political signals to the industry. Cancellations of new projects and the dismantling of existing fossil fuel infrastructures through a just transition would be the natural next steps of a fossil-free movement.

Perhaps the most important ideological barrier to overcome is the perceived notion that citizens do not have the power to influence the supply or the production side of the economy. This neoliberal discourse reduces a person to a consumer that can only affect the economy through her/his purchasing power. With this study we aim to point out that the fossil-free activists not only *could* drastically change the production side but also their influence has been much larger than any other strategy they could pursue as mere consumers. Lifestyle choices are an essential part of a person's integrity and behaviours consistent with one's ethical framework provide conviction for one's actions. However, in terms of changing the world (as required by the current and stringent carbon budgets and the climate emergency), it is essential to politicize our discourse both for practical as well as strategical reasons. In a way, the authors strongly encourage activism as a lifestyle choice.

This is not to overlook the limitations of the existing fossil-free movement in Portugal. The movement definitely needs more organizers as well as more engaged people, as the current Socialist Party government has been ridiculously vocal in its insistence for the Aljezur drill.

This article was indeed written by organizers, and the authors would be extremely happy to pass this one message across: For a just and liveable planet, join the fight and fight to win.

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