

## Abstract

This paper examines the link between formal authority and executive power by comparing two supervising authorities in two related industries. It includes an analysis of regulations and statements of the Norwegian Petroleum Safety Authority and the Norwegian Maritime Authority regarding the power to influence industry safety. Safety in both industries relies primarily on functional regulations, whereby the companies develop their own safety measures, which the authorities advise upon and control. A closer look at the two agencies reveals inequalities in power, despite their equal formal safety authority and similar regulatory regimes. The Maritime Authority's power is impeded by its objective to facilitate maritime safety *and* to be a preferred administrative body among a large number of globally mobile, low-income companies. This enables the companies to implement only the minimum safety standards. In contrast, the petroleum industry context supports the Petroleum Safety Authority's ability to exercise multiple power dimensions while ensuring that the resourceful companies develop high safety standards. In sum, each industry's regulatory potential seems to be hinged on its characteristics, objectives, and resources that the relevant authority is given. Further, this study shows that successfully enforced self-regulation requires both the regulated and the regulators to have sufficient resources. Successful regulation demands political safety support, especially in global industries with viability problems. In practice, these findings can be viewed as a warning to governments not to take safety measures lightly, even in times of cost cutting.

Keywords: Safety; Regulation, Safety authorities, Power, Maritime, Petroleum

# Permitted to be powerful? A comparison of the possibilities to regulate safety in the Norwegian petroleum and maritime industries

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## Abstract

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## 1. Introduction

Regulators are expected to influence their industry's safety standards. However, some industries are more influenced by their safety authorities than others. By evaluating two authorities' power in light of their industrial contexts, one can understand how safety authorities may increase their capabilities.

Although regulation and power are closely interrelated, it is not a given that a regulator possesses power. Rather, regulation is a political process that involves a *contest* for power [1]. Weber (1971 p. 152, quoted in Uphoff [2]) defines power as "the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance." This probability is stable when power is based on legitimate authority. Legitimacy is founded on legal, traditional, or charismatic authority, in Weber's terms. Regulators have formal authority, which should provide them with the ability to utilize tools and strategies to improve safety standards. Such indispensable tools include clear regulations and correct sanctions. According to Viscusi [3], "the potential scope of regulation is limited only by the imaginations of regulators." However, recent studies show that the Maritime Authority is hampered by its limited discretionary space in terms of resources and objectives [4], while the Norwegian Petroleum Safety Authority deliberately uses ambiguous and unsanctionable regulations as a safety mechanism [5, 6]. A relatively recent development in regulation is enforced self-regulation, which provides an opportunity for regulated companies to establish safety management systems that have room for flexibility and innovation and are applicable to their enterprises [7-10]. In practice, enforced self-regulation in the Norwegian context involves collaboration among the regulator, the regulated, and the labor unions and is, therefore, called co-regulation [11].

In this paper, the link between formal authority and executive power is analyzed by comparing two supervising authorities that have similar formal authority in two related and partly overlapping industries. This study poses the following question: How do the Maritime Authority and the Petroleum Safety Authority vary in their regulatory strategies and power? Both authorities' regulations and interview statements are analyzed regarding practical enforcement (Section 4) to explore their power to regulate safety (Section 5). The data show that both authorities try to wield the same type of wide-ranging power and regulations to improve industrial safety standards. However, the industries' contexts

lead to different enforcement and outcomes. Because the Maritime Authority is reluctant to employ its direct power, agenda power, and symbolic power, safety measures in the maritime industry are kept moderate. Contrastingly, the Petroleum Safety Authority meets no resistance when it uses its power dimensions to constantly improve safety standards in the petroleum industry.

## 2. Literature about power and regulation

Power is a concept with various and sometimes opposing definitions. Depending on what aspect of power one chooses to focus on, it may be viewed as a resource or as a relational state. It can be a resource when an actor is able to control the resources on which other actors depend [12]. Power as a resource may also enable a person or group to overcome opposition or influence actors to behave other than they would under different conditions (i.e., domination)[13]. According to Baldwin [14], power may be regarded as context-specific; as policy makers have “notoriously short time horizons,” they need to discern whether they have a “good hand” by determining the game they are playing.

Lukes [15] views power as having three dimensions (see Figure 1). In the first dimension, *direct power*, power is visible and may come from formal authority, resources, individual characteristics, knowledge and expertise, control of sanctions and rewards, and networks or “connections” [16]. This visible form of power is found in overt conflict, where power can change others’ actions. The second dimension, *agenda power*, is less direct and can be understood as hidden. It enables the actor to control who participates in the decision-making arena and what is included on the agenda. The third dimension, *symbolic power*, is invisible and can shape the meaning of what is acceptable or what is ideal. The third is perhaps the most subtle but powerful dimension:

*Probably the most insidious of the three dimensions of power, invisible power shapes the psychological and ideological boundaries of participation. Significant problems and issues are not only kept from the decision-making table, but also from the minds and consciousness of the different players involved, even those directly affected by the problem. By influencing how individuals think about their place in the world, this level of power shapes people’s beliefs, sense of self and acceptance of the status quo—even their own superiority or inferiority. (VeneKlasen and Miller, 2006, p. 40 in Gaventa [17])*

Gaventa [17] sees *spaces* and *levels* of participation as essential to understanding the concept of power and incorporates them into Lukes [15] dimensions of power. The spaces for participation are arenas for decision-making, while the levels include local, national, or global locations of power [17]. Spaces can be meetings, groups, media, and other formal or informal forums in which the power among the relevant actors is displayed. These spaces might be open to everyone, closed to certain groups, for invitees only, or claimed by others [17]. Levels and spaces of participation are especially important when one wants to understand power in globalized industries, where it may reside in various and potentially hidden levels and spaces.

Although power may be unequally distributed, it does not always connote a negative characteristic, such as domination or control [18, 19], nor is it always considered zero-sum [20]. Power is dynamic and may develop through social relations [21]. Moreover, it provides a degree of social order, making it possible for authorities to enforce decisions and implement laws [20]. To fully understand such a dynamic and “multifaceted phenomenon,” several aspects and contexts must be taken into consideration [22]. This study applies Gaventa’s perspective on power, and levels and spaces of power are combined with Lukes’ dimensions of power (collated in Figure 1).

[Figure 1: Power model based on Gaventa [17] and Lukes [15].]

Understanding the ways in which regulators exercise their power demands a closer look at the different contexts of *regulation*. According to Baldwin, Cave [23], the term *regulation* may be interpreted in three different ways (Figure 2). The first definition pertains to a set of commands or rules that a government has established for a particular purpose—for example, framework regulations. The second definition is referred to as deliberate state influence and applies to all state actions that are designed to affect business or social behavior. Examples of state actions are contractual powers, subsidies, information, taxes, franchises, and the deployment of resources. The third definition involves all forms of social and economic influence, whether state-based or not. For instance, corporations, trade

bodies, or voluntary organizations may carry out this form of regulation. Baldwin, Cave [23] point out that regulation is not only meant to restrict activity or behavior but can also be utilized as a means of facilitating activities and behavior. Furthermore, they emphasize that the capability of a regulator to influence those it regulates is dependent on the regulator's legitimacy, power, and ability to use regulation in its different contexts.

Like all organizations, regulators face challenges in performing their role of promoting safety. Reason [10] describes several arguments regarding why "the regulator's lot is an unhappy one". He characterizes the regulatory process as impeded by the relationship between the regulator and the regulated. This relationship should foster trust and collaboration with a view to improving safety. Thus, regulators rarely use threats and sanctions and opt for compromise and bargaining instead. A relationship that is characterized by trust is quintessential; when there is trust, organizations are less likely to filter information and more likely to adhere to the regulations and guidance of the authorities. Despite the regulator's limited resources, it needs to be proactive, and in many cases, it needs to be able to resolve conflicting goals [10]. Several cases of the regulator's unhappy lot may have contributed to disasters: Japan's Nuclear and Industrial Safety Agency was subordinate to the Ministry of Economy, Trade, and Industry during the Fukushima disaster; the United States Minerals Management Service had the responsibility of royalty collection from offshore drilling and to ensure environmental protection when the Macondo had its fatal blowout; and the Department of Energy had a role in promoting both industry development and safety at the time of the Piper Alpha disaster. In this paper this unhappy lot is further explored in the discussion of the two Norwegian authorities.

[Figure 2: Different contexts of regulation [23].]

### **3. Method and material**

This study is based on interviews resulting from the research projects "Regulative Rationalities and Safety Culture Development" and "Translating Health Safety and Environment [HSE] Culture in the Norwegian Petroleum Industry", both of which were financed by the Research Council of Norway. The maritime industry data comprise 13 interviews with 17 persons employed at the Maritime Authority, as well as publicly accessible documents about the regulator and the industry. The data for the petroleum industry comprise interviews with representatives from the Petroleum Safety Authority (8 informants) and two petroleum companies (13 informants) in addition to related documents.

One to three researchers from the specific projects conducted the semi-structured interviews, each of which lasted from one to two hours. This approach provided an opportunity for the informants to respond to the research questions in an in-depth manner. After receiving informed consent from the informants, a digital recorder was used during the interviews.

The analysis identified the dimensions of power and regulation employed by the authorities and evaluated how these authorities viewed their strategies and the industry response. See Section 4 and Table 1 for information about the industries and their regulators.

In the data for each industry, two regulation examples are emphasized. For the maritime industry, the International Safety Management (ISM) Code for the safe operation of ships and pollution prevention is essential for safety management. It states that ship companies are responsible for ensuring that every ship has a functioning "safety management system" that includes job descriptions and risk assessments of all operations. The ISM Code is translated verbatim in Norway's "Regulations on a safety management system for Norwegian ships". In the petroleum industry, an important and widely discussed regulation is the Norwegian petroleum Section 15 in the Framework Regulations, which states that each company must have a sound HSE culture.

The data from the petroleum industry includes interview statements from company representatives because they show that the HSE culture paragraph has resulted in company-internal power processes that are partially hidden from the authority and company personnel.

### **4. Empirical analysis**

This section contains the results of our interview and document data. Both Section 4.1, which is about the Maritime Authority, and Section 4.2, which is about the Petroleum Safety Authority, are divided into subsections about industry characteristics, authority structures, regulatory strategies,

industry responses, and other influences. This provides a foundation for comparison and discussion of their regulation and power in Section 5.

At first glance, there appears to be a significant difference between these two examples: The ISM Code is a globally initiated regulation, while the HSE culture requirement is part of a nationally developed regulation. However, they share some essential characteristics: They were introduced in the same period and as a response to several organizational accidents in their respective sectors. In this period—the 1980s and 1990s—the safety management of many industries was discussed globally. As with many regulations during this period, the ISM Code and HSE culture regulations are function-based rules that give each company the responsibility to improve safety management in regard to its activities. This is based on the notion that industries have the best knowledge of their own risks and can, therefore, manage them under regulations that allow them the freedom to implement the requirements that best suit their enterprises. Consequently, functional rules are difficult for a company to implement and for the authorities to control [24]. The regulation of both ISM Code and HSE culture has resulted in a variety of actions, some of which have strayed considerably from the regulators' intentions. Table 1 summarizes the vital information.

[Insert Table 1 around here]

## **4.1 The maritime industry**

In this section, it is described what the interview and document data indicate about the Maritime Authority.

### **Industry characteristics, including international regulation**

As is common in the maritime world, the Norwegian maritime industry consists of an almost countless number of seafarers, vessels, ship owners, managers, and third-party organizations, which operate both domestically and internationally.

Because the maritime industry has long operated globally, one must study the Maritime Authority's regulatory power in a global setting. The recession in the 1970s forced ship owners to investigate ways to reduce their costs, and recent deregulation trends gave them a global market to utilize [25, 26]. Consequently, maritime countries witnessed domestically operating ship owners registering their ships in countries with lenient regulations and lower taxes. As the maritime industry is highly mobile, it is common to register vessels in countries that do not have very stringent requirements and to change to the cheapest crew members and a less rigorous classification society, all of which make the maritime industry fiercely competitive and difficult to govern [see 25, 27, 28-30].

In 1948, the United Nations established the International Maritime Organization (IMO) to harmonize international maritime regulations [31]. The IMO is responsible for ensuring safety and security in the shipping industry and preventing marine pollution. Today, the IMO consists of 171 member states and collaborates with nongovernmental and intergovernmental organizations [32]. A multitude of actors continuously shapes the international agreements, which, in turn, create the foundations of national maritime regulations [32, 33] (see Couper [25], Sampson [27], ILO [28], Goss [29], Silos, Piniella [30]). A bad reputation with regard to maritime safety can be attributed to the troublesome process associated with international conventions [33-35]. IMO conventions are developed under varying stakeholder demands and political pressure. Even after its adoption, a convention does not enter into force if member states object to the convention within a certain period. Because it is practically impossible for all countries and actors to agree on high safety standards, safety regulation development is impeded [4]. The IMO's safety management regulation is the ISM Code, which specifies that every company is liable for the development, implementation, and maintenance of its own safety management system [36].

### **Authority structure and objective**

Norway has two maritime authorities: The Coastal Administration and the Maritime Authority. As the Coastal Administration's task is directed toward maritime infrastructure, acute pollution, and traffic services [37], this paper focuses on the authority that deals with the vessels and ship owners—namely, the Maritime Authority.

The Maritime Authority formally serves as an advisor to the industry, a supervisory authority, a manager of Norwegian ship registers, and a driving force of maritime safety and environmental activities. This role is stipulated by the Ministry of Trade, Industry, and Fisheries, as well as the Ministry of Climate and Environment [38]. These political ministries also stipulate the Maritime Authority's primary objective, which is to become the preferred maritime administrative body [39]. Therefore, the Maritime Authority aspires to be "customer-oriented (shipowners and other actors in the industry)," "effective and efficient," and "a visible, competent and recognized administration so that shipowners will choose to sail under the Norwegian flag." However, a significant aspect of the regulations that the Maritime Authority needs to enforce is related to safety.

The Authority representatives see the enforcement of safety regulations as their profession; however, the formal structure of the Maritime Authority accords them contesting priorities: enhancing Norwegian trade and simultaneously ensuring safety and environmental protection. In this regard, the Maritime Authority's double binds fall under Reason's description of a "regulator's unhappy lot" [10]. The Maritime Authority has to take the companies' economic situation into account when enforcing regulations; this is because the industry can register its vessels elsewhere if they are required to pay for optimal safety measures [4]. This ambiguity is raised in the interviews:

*We're a directorate [that is] subordinate to a trade ministry. Our task is to ensure professional[ism]. Yet, we live in a world [in which] if we set so stringent requirements that we can't engage in this industry at all, then the question is if it helps us in the end, if you look at the world. If so, it must be a political exercise that says we should not engage in shipping in Norway. I don't think that'll ever happen. You have the professional [safety considerations], but there is a limit. There are borderline cases where you also have to take into account the arguments about running a business. (Maritime Authority informant)*

To be given an easier objective by the politicians, some representatives wish that they could be under a "Sea Safety Ministry" (or some other ministry with more congruent professional goals) instead of a ministry whose aims conflict with safety. Because the Maritime safety authority is subordinate to the Ministry of Trade, Industry, and Fisheries, it cannot impose highly stringent regulations, as this would undermine an aspect of its goal of being the preferred registration state. Demanding regulations will encourage the ship companies to register their vessels in a different state. Moreover, they notice that, in contrast, their colleagues at the Petroleum Safety Authority never experience conflicting priorities, as they are safety professionals who are subordinate to the Ministry of Labor and Social Affairs.

*We have some regulations that come into conflict with commercial considerations, but this is solved through dialogue with the Ministry. But the challenge is always there. In the oil industry, the Petroleum Safety Authority was separated from the Ministry of Petroleum and Energy. A similar distinction does not exist for maritime. (Maritime Authority informant)*

The Maritime Authority cooperates closely with politicians and the industry to satisfy all parties' interests and simultaneously identify the cheapest ways to satisfy safety regulations. It is pragmatic and recognizes its responsibility regarding Norwegian trade. The Maritime Authority also reserves its exercise of power for the worst violators.

### **Regulatory strategies**

Another important discussion regarding the Maritime Authority's daily tasks relates to which measures are most effective in regard to safety regulation enforcement. It has dialogue meetings with the industry, focus campaigns, seminars, and informal communications, and it formulates formal guidelines, acts as a guide, and performs audits and supervision. In regard to its supervision, the Maritime Authority employs various strategies, such as issuing orders, fines, and detentions [40]. It also performs spot checks. However, when a representative was asked to choose between campaigns and fines, he considered the latter to be more effective at making industry actors comply with regulations.

*Fines . . . and it is clear: Money is something everybody understands . . . the stick or the carrot? Of course, fines make them think again, but it is possible that other means may be more effective than giving them a fine. But it is clear that if they get a fine, they know that "money is at stake here; we have to do something." But it is a very good question, what is the best way to reach them? (Maritime Authority informant)*

In the interviews, the authority representatives focused on the ISM Code, which specifies that every company is liable for the safety of its activities. This has good resonance within the Maritime Authority.

*Before [in the old “command and control” regime], the authorities were given most of the responsibility if something happened. However, with the new Ship Safety and Security Act, it has become explicit that the responsibility is delegated to the ship owner (. . .) It is up to the industry—the ship owners—to establish a standard that is above the minimum level. (Maritime Authority informant)*

Functional requirements empower the ship owners by providing them with an opportunity to develop procedures that are adapted to their activities. The Maritime Authority expects the ship owners to adhere to safety measures, to develop procedures based on risk assessments, and to use these procedures.

*Responsibility should be placed where it belongs. It is, therefore, the ship owners and companies that have the responsibility. We should not create solutions for them or give them the gold standard, but we have a framework, regulations we deal with, and we act as watchdogs and see to it that they comply in relation to what we regulate. (Maritime Authority informant)*

The regulations and the various regulatory measures like dialogue, inspections, and so on should give the Maritime Authority the opportunity to exercise all forms of regulation and power dimensions described in the literature section [15, 23]. However, aspects of the industry make achievement of the goals challenging.

### **Industry response**

Contrary to the expectations of the authorities, instead of using co-regulation as an opportunity to improve their safety standards, the ship owners have settled for the minimum regarding what is required [41]. The maritime industry’s stiff competition results in low budgets that aim to meet low or moderate safety standards. Furthermore, companies have created extensive bureaucratic safety management systems [42, 43] that may jeopardize practical safety measures [44, 45].

*They are very much reliant on authorities. I remember I was shocked when I started here, because there were problems with fishermen falling into the sea and not being able to board the ship again. And I asked, “Can’t they just have a ladder so they can come up?” And then the answer was that there was no ladder because it wasn’t required. (. . .) That was seven years ago, and it’s still applicable. To invest in safety equipment costing [10,000 US dollars] is not a priority. But when it becomes a requirement, then something happens. (Maritime Authority informant)*

Some authority representatives see where they could theoretically improve the regulations to obtain the type of industry response they want:

*I think clear regulations will be a straightforward way to get the industry to understand what we expect of them . . . which requirements are applicable. It’s not a secret that the regulations we have today are massive [and] comprehensive, and it’s complicated, and it isn’t necessarily easy to understand for anyone. So, if we managed to get it down to a more straightforward level, I think maybe the industry would be more aware of the applicable requirements. (Maritime Authority informant)*

### **Other influences**

Some regulator representatives indicated that instead of working solely to achieve sea safety, they experienced pressure due to the agendas of politicians, interest organizations, and market forces.

*The media is there and sets the agenda. We had a case about dangerous cargo on ferries, with lots of trouble and lots of publicity in the papers, where we, in a way, were forced into a process and where the ministry pushed us to find a solution. Yes, we absolutely have those cases. We jump when the media wants us to. (. . .) There was a pollution case without injury to persons. It was close to the property of the posh Oslo people. And that same day, there was a cargo ship that sank [off the coast of] Sweden, where six men died. And [the fatal sinking] made a small newspaper paragraph (. . .) [while the media pressure from the pollution case] was so bad that we had to mobilize a team to satisfy politicians, ministries, and the media with information. Stuff like that is a bit shocking. (Maritime Authority informant)*



## 4.2 The petroleum industry

In this section, it is described what the interview and document data indicate about the Petroleum Safety Authority and its context.

### Industry characteristics, including international regulation

The petroleum industry consists of oil wells, gas pipes, rigs, subsea installations, petroleum workers, companies, licenses, and a myriad of third-party organizations. This overlaps with the maritime industry, as the petroleum industry is partly sea-based and, thus, uses a multitude of vessels and rigs that are sorted under maritime regulation.

On the global petroleum scene, the organizations for petroleum-exporting countries (OPEC and OAPEC) play a major role. However, these intergovernmental organizations focus primarily on unifying petroleum policies and regulating the supply of oil in the petroleum industry. Other international constellations include the American Petroleum Institute, the International Regulators' Forum, and the International Offshore Petroleum Environment Regulators, all of which collaborate regarding safety information and environmental protection.

Compared to the maritime industry, the Norwegian petroleum industry is somewhat immobile due to the location of petroleum reserves outside the Norwegian coastline on the Norwegian continental shelf. Even though there are numerous organizations in the petroleum industry, only a moderate number of companies search for and extract oil and gas in Norway. During the early stages of the industry, the government proclaimed sovereignty and absolute authority to grant licenses for exploration and production [46, 47].

Due to the government's requirements for issuing licenses and the relatively high oil prices in the last 30 years, the oil companies operating in Norway have been few and wealthy. At the time of writing, several small companies have entered the Norwegian oil industry, and oil prices have been falling for numerous months, which might lead to major changes in terms of industry's focus on safety.

In 2002, the Norwegian Petroleum Directorate (which was later divided into the Norwegian Petroleum Directorate and the Petroleum Safety Authority) introduced the *HSE culture* concept in section 11<sup>1</sup> of the HSE framework regulations with the intention of improving safety and as a reaction to the negative trend of serious accidents that had occurred. The Framework Regulation's section on HSE culture is analyzed, for example, by Kongsvik, Gjørund [48] and Kringen [5]. The paragraph in question states the following:

*The party responsible will encourage and promote a sound health, safety and environment culture comprising all activity areas, and which contributes to achieving that everyone who takes part in petroleum activities takes on responsibility in relation to health, safety and the environment, including also systematic development and improvement of health, safety and the environment. [49]*

### Authority structure and objective

In the 1970s, with the advent of the Norwegian oil industry, the Norwegian Petroleum Directorate performed administrative, business, and control functions. Concerns about the conflicting roles of the Petroleum Directorate (see Lindøe and Olsen [50]) resulted in its division into two independent bodies in 2004: The Petroleum Directorate was to administrate the petroleum resources, while the Petroleum Safety Authority was the safety regulator [46, 51]. Instead of being subordinate to the Ministry of Petroleum and Energy, the Petroleum Safety Authority became subordinate to the Ministry of Labor and Social Affairs.

The Petroleum Safety Authority's objective is to prompt health, safety, and environmental and emergency preparedness in the petroleum industry and to ensure that the regulated enterprises cultivate high safety standards.

### Regulatory strategies

Like the Maritime Authority, the Petroleum Safety Authority abides by international conventions; however, when it comes to decisions regarding the Norwegian continental shelf, the Petroleum Safety Authority makes the final decisions. Similar to maritime regulation, the responsibility for managing risk

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<sup>1</sup> This is Section 15 in the current version (2016).

is transferred to the enterprises themselves through a regime of enforced self-regulation or co-regulation, and develops broadly stated legal standards and functional requirements for defining enterprise responsibilities [24]. These function-based requirements provide the organizations the power to devise and implement their own safety management systems.<sup>2</sup>

In regard to supervision, the Petroleum Safety Authority employs several regulatory strategies, depending on the severity of the regulatory breach. These range from dialogue, which is the most commonly employed strategy, to the recommendation for exclusion from operating on the Norwegian continental shelf, which is the most severe strategy. The Petroleum Safety Authority publishes guidelines or notes to clarify regulations and communicate information. Other forms of communication with the enterprises include seminars, audits, and verifications, as well as informal forms of communication. Unlike the *regulator's unhappy lot* described by Reason [10], the Petroleum Safety Authority's resources are deemed sufficient. In addition, this regulatory authority is free from commercial burdens because it does not fall under a ministry concerned with trade. It does not devise detailed rules and is able to focus its energy on high-risk activities and keeping pace with the technical developments in the industry. The Petroleum Safety Authority states that a prescriptive regime encourages passivity and inadequate commitment among the enterprises [52]. In the end, prescription makes the regulator the guarantor of the industry's safety, which the authorities believe is unsuitable for ensuring the improvement of safety [52]. However, the companies' high degree of freedom in fulfilling the requirements also has a disadvantage. Requirements that are too broad may be open to several interpretations and misinterpretations. This is the case for some companies in our study regarding the interpretation of the HSE culture concept.

The introduction of this functional requirement allowed for a broader method of regulating safety in the petroleum industry, not in the sense of the auditability of the requirement, but as a way for the regulator itself to increase its influence.

*To have a requirement that says to the industry that we should develop a sound HSE culture is a very important signal. It provides the Petroleum Safety Authority the opportunity to be more strategic in its approach to the idea of improvement, which we're working toward all the time. (Petroleum Safety Authority informant)*

As this is a functional requirement, the Petroleum Safety Authority must bear in mind during meetings with the industry actors, that they are there to provide guidance—not solutions.

*I'm not there to give them my opinion regarding where they stand, what they do, and what they should do (. . .) especially in terms of resources that are so skewed between a government agency and a company that we have a limited ability to understand their business. So, the goal of our interventions should not be as much about understanding, but rather to encourage them on their own terms regarding what we believe is important. (Petroleum Safety Authority informant)*

## **Industry response**

In examining how the companies translated the concept of HSE culture, the oil companies communicated that the introduction of the concept generated discussions about HSE culture.

*I actually think that the Petroleum Safety Authority was very brave. They received so much criticism . . . "What on Earth do they want with that paragraph?" That was the main feedback. It was not concrete. "What should we do? What is culture? What is HSE culture?" (. . .) It resulted in many discussions. I think it was a very good process. (Petroleum company informant)*

During the interviews, the majority of the informants from the oil companies were unaware that their culture programs stemmed from section 11 of the framework regulations. Most of them proudly claimed that their companies had come up with the safety program. However, a key informant who was directly connected to top management revealed that the company's behavioral program was, in fact, a result of its interaction with the regulator immediately before the concept was introduced into the regulations.

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<sup>2</sup> One important distinction between the maritime and the petroleum industries pointed out in the interviews was the required number of personnel. In the petroleum industry this matter is contractual, while the Maritime Authority sets the minimum for vessels.

*It's quite clear that it was the Petroleum Safety Authority that began to talk about this [safety culture] here. There is no doubt about it. It was why it came to mind, that it was up to us, that I had to try to put this into our context and in our reality and try to find out what we could do about this here . . . and to answer to the expectations of the Petroleum Safety Authority. (Petroleum company informant, top management)*

Petroleum Company A has also started to make its third-party companies undertake this program. Top management support regarding safety as a priority was emphasized due to their attendance in the program.

Powerful actors within and outside the companies also influence how the regulations are implemented in practice. In our empirical results, key individuals from both companies utilized their personal attributes and tapped into their powerful networks to shape the agenda regarding the type of culture program they should establish. Both our data and Kongsvik, Gjørund [48] emphasize that the regulatory guidelines regarding the HSE rule must be straightforward and unambiguous to prevent it from becoming “lost in translation.”

*We saw that part of the original regulatory text gave associations of responsibility at the individual level. ( . . . ) What we saw is that companies started placing the responsibility on individuals to ensure they meet this requirement. ( . . . ) Some companies even talked about consequences if people did not follow procedures. (Petroleum Safety Authority informant)*

## **Other influences**

Other actors, such as the media, academia, competing organizations, and consulting firms, influence the interaction between the regulator and the regulated. For instance, the media coverage of a fatal accident offshore brought about actions (or reactions) from both parties. After the death of an offshore worker, the Petroleum Safety Authority (the then Norwegian Petroleum Directorate) pointed to the negative development of culture on the offshore platform where the fatality occurred. The description of the oil company's minimal regard for safety was amplified by the media and affected the company's finances and confidence in themselves.

*In retrospect, it is possible that we went too far. I've been thinking about it [the investigation report]. when we saw that it [the report] had such a huge impact on the petroleum company. Like [the term “bad safety culture”] was also used in the media, and it hit the company so hard that it affected the company's self-respect ( . . . ) Using the concept culture in the investigation report was probably not the worst thing, but with everything else that was around the media drive that added up on top of everything, it was extreme. (Petroleum Safety Authority informant)*

It is important to note that the petroleum industry's safety also benefits from the power shared by actors in the industry. The safety focus is strengthened by the tripartite system (a collaboration between the safety authority, the enterprise owners, and the labor unions) and the establishment of several discussion forums [53-55].

## **5. Comparison of the two authorities**

The analysis of the empirical data in the previous section discussed several similarities in the authorities' safety objectives, regulatory strategies, and the media pressure to which they are subjected; however, differences exist in financial influence and industry response. The maritime and petroleum industries' regulation types and their capacity to execute their power will now be discussed.

### **5.1 Regulation types**

Baldwin et al. [23] define three types of regulation. The co-regulation regime [11] formally allows the both the Maritime Authority and the Petroleum Safety Authority to enforce all three types. Still, the former authority lacks ample discretionary space for exercising all these regulation forms.

In the first category of regulation—that is, the legally binding set of rules—both authorities emphasize the role of their safety management regulations in paving the way toward signaling the importance of safety. However, the Maritime Authority's discretionary space is limited because it often enforces international maritime conventions instead of tailor-made national safety regulations. Within these frames, the Maritime Authority representatives can still stretch their imagination regarding the possibilities to increase safety standards; however, this depends on how it solves the issue of being the

“preferred maritime administration.” In the case of the Petroleum Safety Authority, the initial translations of the ambiguous concept of HSE culture have resulted in safety programs that differ considerably from what the authority had envisioned. For both authorities, these functional requirements and co-regulation lead to some power restrictions.

Regarding regulation as a deliberate state influence, numerous actions can make regulators influence the companies’ behavior. The preparation of regulatory guidelines, conferences, seminars, dialogues, meetings, and so on is also regulation. In addition, the Maritime Authority has formal contractual power over public maritime transport services, for example, even though it does not act upon it. Exclusion is also a regulatory tool that is available to the Maritime Authority; however, the banning of ships is a solution of last resort, as it can negatively affect Norway’s commercial interests, as well as the goal of being the preferred administration. The Maritime Authority has numerous regulatory options that it does not employ. In contrast, the petroleum industry does not need to use the exclusion of actors from the Norwegian continental shelf as a regulatory option, as the actors themselves are concerned with the safety performance indicators of their companies, as well as their third-party suppliers. Moreover, capitalizing on cooperation and the positive relationships that it has with the industry, the Petroleum Safety Authority need not resort to extreme sanctions.

The third type of regulation—all forms of social and economic influence—is also exhibited by both the maritime and petroleum industries through co-regulation. In essence, influence through trade unions is a way to regulate. The petroleum industry boasts of its tripartite collaboration. The diverse structures of the maritime industry complicate tripartite collaboration, but the labor unions and employers’ associations are invited to national and international regulation development meetings and hearings.

None of these regulation forms is isolated from the other. Like enforced self-regulation where the ship owners and oil companies are experts in their activities and processes, the safety regulators themselves are knowledgeable in their respective areas of responsibility. The data material and perhaps, therefore, this paper emphasize the positives regarding the petroleum context and the negatives in regard to the maritime context. As Baldwin [14] pointed out, challenge to both regulators is to determine what their “good hand” is within their contexts [3, 14].

## 5.2 Power dimensions

This section will show that our two regulator cases exhibit the three power dimensions described by Lukes [15] (see Figure 2). Even though both authorities possess direct, agenda, and symbolic power, several power differences exist between them.

The Maritime Authority’s results in regard to the power dimensions are ambiguous. The Maritime Authority has *direct power* as a formal authority with coercive power in the form of detention, fines, and regulatory expertise. However, the discretionary space for rule making is limited because international regulation is often employed. The Maritime Authority representatives have *agenda power* through setting the agenda of their range of meetings, dialogues, seminars, and campaigns; however, as the interviews show, they also react to the larger societal agenda set by other groups through their media and political influences. The Maritime Authority also has some *symbolic power* because the companies depend on detailed regulations from the Authority instead of setting their own standards, as described by the functional safety regulation. Inversely, however, the authority’s *lack of* symbolic power is also demonstrated by the industry’s unwillingness to make changes unless economic fines are involved.

In terms of levels and spaces of power, the Maritime Authority’s power at the local and national levels is apparent. It also participates in the international arena in closed and invited spaces, such as IMO and ILO conventions. In addition, it organizes national conferences and hearings.

Even though the Maritime Authority possesses all the power dimensions, they lack domination and control at many levels and in many spaces. One way in which the Maritime Authority could expand its dimensions of power would be to dominate more of the spaces in which it participates, including at the international level. This could lead to the acquisition of more power through showing credibility, reliability, and alliances [56]. The interviews indicate that the Maritime Authority works closely with the industry to achieve this aim. Perhaps it can find other rewards or information that can influence the industry and politicians to become genuinely interested in spending on safety. The main problems appear to be the structures of the industry and the political objective, which do not allow the Maritime Authority to use its power on safety only. As politicians have notoriously short time horizons, which

causes long-term safety to be ignored, the Maritime Authority does not acquire the ability to execute power, as Baldwin, Cave [23] put it.

The case of the petroleum industry is similar in some ways but is still quite different overall. The *direct power* of the Petroleum Safety Authority representatives comes from their resources and formal authority. They also have control over various sanctions, depending on the severity of the regulatory breaches. The personal attributes of the authority representatives play an important role in bringing about trust and positive interactions between the regulator and the companies. In addition, the Petroleum Safety Authority has tremendous *agenda power*, as evidenced by the introduction of HSE culture into the framework regulations. Through the framework regulation, the Petroleum Safety Authority was able to make HSE culture an important issue to discuss and reflect upon. It also set the agenda through its interaction with the companies and labor unions, for example, by providing new arenas for safety (such as the Safety Forum). Finally, *symbolic power* is also exhibited by the Petroleum Safety Authority. It influences the companies to adopt regulatory goals, as reflected by their willingness to implement safety programs, although their actual implementation of the HSE culture section 11 was not what the safety regulators expected. The Petroleum Safety Authority demonstrates that power does not have to be zero-sum; it can be gained without dominating the other.

When it comes to other spaces of power, the Petroleum Safety Authority makes use of closed, invited, and claimed spaces through dialogues and meetings with the regulated enterprises and establishes new arenas for setting safety as the agenda. It operates primarily at the local and national levels, although it also participates in various global safety-related fora.

It is evident that while all power dimensions are present for both authorities, the Petroleum Safety Authority remains more powerful in practice. The petroleum industry context, the Authority's objective, and the few but wealthy enterprises in the industry allow the Petroleum Safety Authority to use its power to influence industry safety. Contrastingly, the Maritime Authority has all the safety dimensions, but has neither support for safety investments in its politically decided objectives and resources nor a homogenous industry with considerable capital.

### **5.3 Resources, objectives, and industry characteristics—factors essential to the execution of power**

The role of a safety regulator is self-evident: to regulate safety. The Maritime Authority and the Petroleum Safety Authority both aim to regulate safety in their respective industries. However, both authorities face pressure from powerful industry actors that want to have a say in how safety is regulated. Managers in high positions, those regarded as having expertise, and charismatic personalities have the power to both influence others and set agendas. The functional regulations provide the companies in both industries with the power to manage their risks themselves without the need for detailed commands to be issued by the two authorities. Hence, this reduces both the responsibility and power of the authorities. Moreover, the media sets the agenda and affects the regulators' focus and priorities. Our data showed examples of this in both the maritime and the petroleum industry. The authorities must be aware of other actors' influence on them and their power to fulfil their duties.

Apart from the potential influence of other actors in their surroundings, the maritime and the petroleum authorities regulate in two very different environments. The maritime industry is a global and mobile industry. This makes the competition fierce, thereby forcing the companies to seek various methods of cost cutting. Globalization, in addition, makes extensive cost-cutting measures available, including registering in lenient states, hiring low-cost labor, and getting certified by less serious certification bodies. Such conditions encourage the regulated companies to flee from the stringent safety regulations not because it is convenient to do so, but because it is a method of sustaining their viability and ability to cope with a competitive market. Unfortunately, this fierce environment causes the politicians to give the Maritime Authority two, often conflicting objectives of regulating the industry while remaining the preferred administrative body.

Contrastingly, the conditions in the petroleum industry give the regulator the upper hand, as oil reserves are limited to a number of specific geographical locations. Moreover, the Norwegian government's early actions in declaring sovereignty over the Norwegian continental shelf ensured that the government would maintain control over the resources. The few global actors with traditionally vast amounts of resources can afford to look beyond company viability and production. The oil companies

operating in Norway even evaluate the safety performance of third-party service companies before they sign any contracts. There is a saying in the offshore industry that “you don’t win contracts by having a good safety performance, but you lose contracts by having a bad one.” Companies on the Norwegian continental shelf expect to have good safety performance, and to win contracts, one has to be among the best. It is also worth noting that these large, visible international actors do not want to smear a good company name, which could result in additional safety requirements.

An important point related to the different industry characteristics is that the authorities’ *resources* differ. This is particularly apparent in the authorities’ differing objectives: The Petroleum Safety Authority can focus on safety, while the Maritime Authority must simultaneously facilitate safety and be a favorable registration state for the companies. Thus, the Maritime Authority’s conflicting goals reduce its focus on safety, while the Petroleum Safety Authority gives undivided attention to safety. Safety regulation is, therefore, not straightforward in the case of the Maritime Authority. The Maritime Authority does not expect the companies’ safety standards to be considerably higher than the minimum requirements since the Authority must also consider the political and economic aspects of being an attractive registration state. Conversely, in the petroleum industry, the economic and structural situation is more favorable. This grants the Petroleum Safety Authority a greater degree of freedom to drive the industry into reaching high safety standards. Due to the sheer number of vessels that the Maritime Authority has to inspect, it does not have the resources to match its workload. Moreover, as a subordinate to a trade ministry, it is obligated to balance safety and profitability. As described by Reason [10], these double binds are common for regulators, especially in the maritime world [45, 57]. The Maritime Authority experiences a vicious cycle because when the industry is poor, the conditions also worsen for the regulator in terms of its own budget, the companies’ budgets, and the objectives set by the Ministry of Trade, Industry, and Fisheries.

In sum, this discussion shows that the authorities possess many of the same regulatory forms and power dimensions, but industry characteristics and resources impact the authorities’ abilities to make use of their tools (as illustrated in Figure 3). The structures permit the Petroleum Safety Authority to utilize its power more than the Maritime Authority. A further discussion could address the issue of whether the potential, latent power properties of the Maritime Authority make it less or more powerful.

[Insert Figure 3 around here]

## **6. Between authority and power**

Our study reveals that although the Maritime Authority and the Norwegian Petroleum Safety Authority are similar in terms of their formal authority, power dimensions, and strategies, their capacities to influence differ. Some of the distinctions stem from the contexts within which they regulate.

Because the maritime industry is highly mobile, the Maritime Authority is limited by the constraints of fierce international competition, resulting in an industrial and political focus on enterprise viability and cost-efficiency. The Maritime Authority’s conflicting objectives may be a disadvantage to maritime safety, as the Authority is forced to choose between revenue and safety. The Maritime Authority formally owns all regulatory forms and power dimensions, but it is still heavily influenced by the surrounding political and industry actors.

The Petroleum Safety Authority revels in the advantage of regulating safety in a geographically immobile industry. The Authority exercises all three dimensions of power and all three forms of regulation. Armed with sufficient resources, the petroleum companies are easily capable of implementing regulatory requirements. When establishing trust and positive interaction, it is unnecessary for the Petroleum Safety Authority to resort to sanctions. Contrastingly, the Maritime Authority has a lower possibility of executing power due to its context and its aim to be attractive to ship owners.

The difference between these two authorities, however, may diminish, as oil prices remain low. Petroleum companies, which need to focus on their finances and streamline their core competence in less bountiful times, may find the demand for high standards of safety arduous and may, therefore, choose to operate elsewhere. The Petroleum Safety Authority may also become a normal regulator with an unhappy lot.

Answering this paper's stated problem, our study reveals that an authority's resources and the industrial context within which it operates link the concepts of authority and power (see Figure 3). Resources and objectives determine the authority's ability to make use of the various dimensions of power. To be able to improve industry safety through functional regulations, both the regulated and the regulators are required to possess sufficient resources and power.

Our findings send an important message to governments that are striving toward ensuring the safety of industries: If regulation is to be efficient, it must be supported in terms of resources and political will, especially in industries with challenging conditions, and the authorities should be aware and prepared for possible changes in the industry's context. It remains to be seen whether the Norwegian petroleum industry will uphold high standards of safety in troubling market conditions.

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### Direct power

- Power to change others' actions
- Power from position, individual characteristics, information, expertise, control of resources or sanctions, alliances and networks

### Agenda power

- Power to set the agenda
- Ability to impact *who* participates in decision-making and *what* is included in the agenda

### Symbolic power

- Power to exert influence over others
- Shapes meaning, beliefs, and what is acceptable, influences the minds and consciousness of those involved

## DIMENSIONS

### SPACES

Closed spaces, Invited spaces, Claimed spaces

### LEVELS

Global, National, Local

## REGULATION

### Set of commands

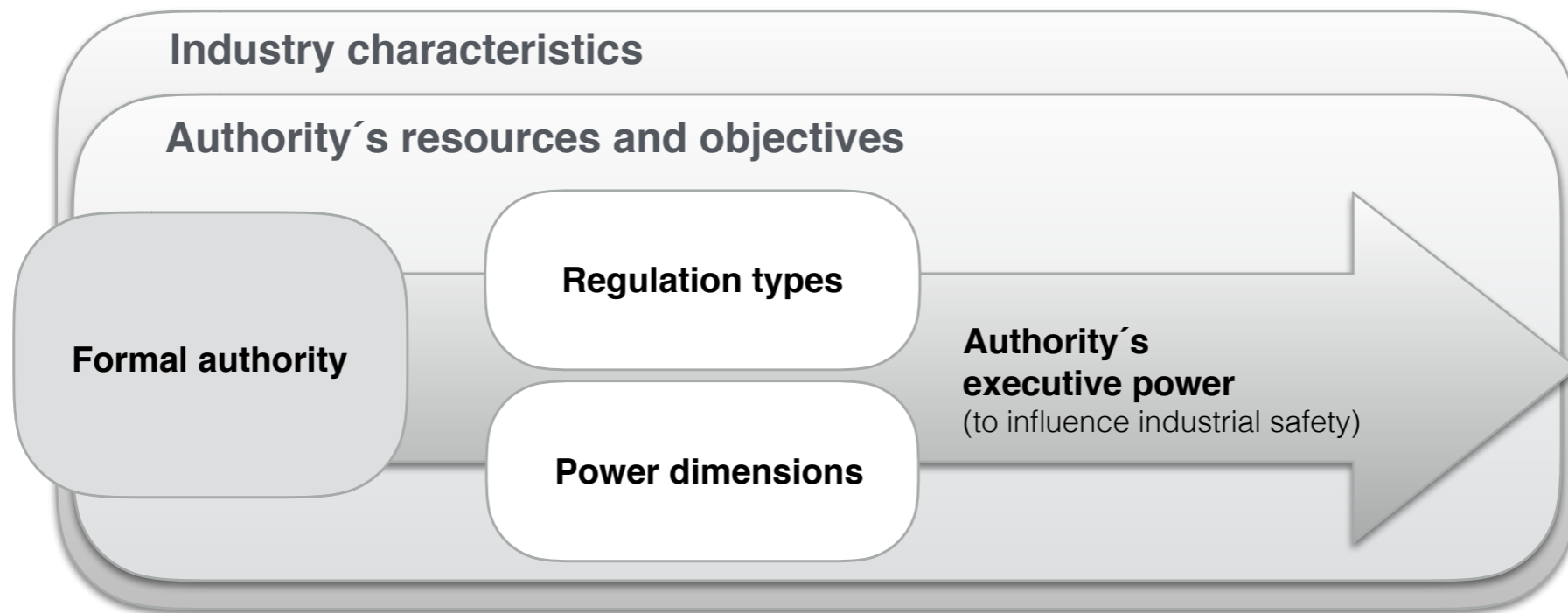
- Legally binding set of rules
- Applied by a body devoted to the purpose
- e.g. Framework regulations, Maritime Safety Act

### Deliberate state influence

- State actions designed to influence business and social behavior
- In the form of incentives, deployment of resources, taxes, subsidies, issuance of contracts, provision of information, franchises

### All forms of social and economic influence

- Regulation carried out by state or other bodies
- Corporations, self-regulators, professional or trade bodies, voluntary organizations
- e.g. dialogue, tripartite collaboration, Safety Forum



**Industry characteristics**

**Authority's resources and objectives**

**Formal authority**

**Regulation types**

**Power dimensions**

**Authority's executive power**  
(to influence industrial safety)

### **List over Figure Caption texts**

Figure 1: Power model based on Gaventa [17] and Lukes [15].

Figure 2: Different contexts of regulation [23].

Figure 3: The authority's executive power is formed not only by its formal authority, regulation types, and power dimensions but also by industry characteristics and the authority's resources.

Table 1: Comparison of the maritime and petroleum authorities.

		Petroleum Safety Authority	Norwegian Maritime Authority
Formal authority	Objectives	Prompt health, safety, environment, and emergency preparedness in the petroleum industry To ensure that the regulated enterprises cultivate high standards of safety	1) Be a driving force in maritime safety and environmental activities 2) Become the preferred maritime administration
	Personnel	167	228
	Regulatory regime	Co-regulation (enforced self-regulation with functional regulations)	Co-regulation (enforced self-regulation with functional regulations)
	Regulatory strategies	A broad range of measures, from dialogue to notifications, orders, shutdown, filing charges, and recommendations for “expulsion”	A broad range of measures, from dialogue to compulsory fines, ship detention, and bans
	Emphasized safety regulation (see Section 3)	HSE Framework Regulations, Section 11 on sound HSE culture. This requirement, is more of a goal-oriented approach that challenges the industry to holistically view safety. This is not formally audited by the PSA.	The ISM Code Mandatory internationally for most ships from 1998. Mandatory by Norwegian law from 1999. (Norwegian ratification: “Regulations on a safety management system for Norwegian ships”)
Authority’s resources	Structure, according to Reason [10]	Safety authority; subordinate to the Ministry of Labor and Social Affairs	Safety authority with conflicting goals; subordinate to the Ministry of Trade, Industry, and Fisheries and the Ministry of Climate and Environment
	Financial situation	Sufficient budget	Limited budget
Industry characteristics	Structure and financial situation	A few large companies; large budgets	Many companies of all sizes; limited budgets
	Operational area	Bound to Norwegian areas	High mobility; operate globally
Regulation type	See Figure 2, according to Baldwin, Cave [23]	All three forms	All three forms
Power dimensions	See Figure 1, according to Lukes [15], Gaventa [17]	All three dimensions	All three dimensions, although constrained by resources and industry characteristics