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RUSSIAN ASSOCIATED PETROLEUM GAS FLARING LIMITS: INTERPLAY OF FORMAL AND INFORMAL INSTITUTIONS

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ABSTRACT

The Russian oil sector, crucial to the economy, was obliged to cut its associated petroleum gas flaring to 5% of total supply from 2012. Significant progress has been made since but the target has not been reached. The impact of the weakness of formal and importance of informal institutions on the policy outcome was found to be significant. Not only is far more flaring allowed as a result of exemptions and non-compliance with subsoil licenses but it also remains unclear how much is actually flared due to unclear metering practices and if fines can be avoided or written off without much oversight. Oil sector lobby has advocated many of these informal institutions. Standard type of informal institutions dominates, while also subversive institutions as well as gaps in regulations were identified. Analysing the oil sector interests through new institutionalism shows that the dominance of informal institutions has influenced the behaviour and interests of oil companies, especially in terms of relaxing legitimacy rules on compliance. Also the norm that oil sector activities are prioritized over environmental protection partly explains the relaxed attitude towards informal institutions; the 5% target set is partly ceremonial for the government.

Keywords: Associated petroleum gas, Russia, informal institutions

1. Introduction

Associated petroleum gas (APG), a side-product of oil extraction, consists mostly of methane and some heavier hydrocarbons, similar to natural gas. It has traditionally been burned in flares as waste, although APG can be utilized as fuel, as raw material for the chemical industry or re-injected to increase pressure in the oilfield. The share of APG of total gas production has increased since 2010 (Table 1). However, the economic profitability of APG utilization is site-specific, and Russian oil companies often lack incentives to invest in utilization infrastructure. Although Russia introduced a 5% limit on APG flaring in 2012, in 2015 almost 12% was still flared (Artamonova, 2016); according to a written communication from the Ministry of Natural Resources (MNR), the figure approached 11% in 2016. This article provides a status report on developments and implementation of APG flaring regulations, and investigates why policy on APG flaring limitations, which could contribute to reducing Russia's GHG emissions, remains half-implemented.

Table 1. APG utilized in Russia, 2011–2015

	2011	2012	2013	2014	2015	2016
<i>APG utilized, % of total APG produced</i>	75.5	76.2	80.6	85.5	88.2	88.7

Source: Artamonova 2016 (CDU TEK); Ministry of Natural Resources written communication to this project.

Utilizing APG instead of flaring reduces greenhouse gas (GHG) emissions, and Russia is the world's fourth-largest¹ GHG emitter (5% in 2014) (EPA, 2018). In 2012, APG flaring accounted for some 1.8–2.7% of Russia's total GHG emissions, depending on the data used² – and up to 90% of oil-industry pollution in its Northern areas (Mazanov, 2013).³

Russia tops world statistics in flaring APG by 21.2 bcm (World Bank 2018). Utilizing APG is a declared political goal of the Russian leadership, which considers flaring as a waste of resources (Medvedev, 2009). Also Russia's negative international image as the world's largest flarer has pushed the issue forward (Putin, 2007) together with the need to demonstrate that the leadership has instigated environmental policy processes, although results may be secondary.⁴ Indeed, the Kremlin tends to announce climate-mitigation policies internationally, but with little domestic action ensuing (Kokorin and Korppoo, 2013).

The energy sector is vital to the economy. In the 2000s, oil and gas have accounted for a fifth of Russian GDP; nearly 30% of consolidated budget revenues, and over half of export revenues (Simola and Solanko, 2017, p.4) – so APG considerations involve more than efficient resource use and environmental protection. Achieving the 5% target should be technically possible, as demonstrated by several already-compliant private oil companies (Table 4). An international comparison of flaring intensity⁵ shows that Russia flares more per

¹ EU28 emits more than Russia but is not counted here, as it is not a country.

² Using NOAA's satellite data for flaring (Tollefson, 2016) and the World Resources Institute's CAIT tool's (cait.wri.org) emission data for 2012 gives the higher value; the lower value is obtained from data reported by Russia to the UNFCCC (<http://unfccc.int/2860.php> → GHG data → Old reporting requirements → Detailed data by Party).

³ Winiger et al., 2017, show that APG flaring accounts for only 6% of Russia's black-carbon emissions, previously estimated much higher (Huang et al., 2015).

⁴ This came up in the author's interviews with APG experts in Moscow, February–May 2012.

⁵ gas flared (m³) per oil production (1000 barrels per day)

unit (5.9) than the other major oil producers, the USA (2.0) and Saudi Arabia (0.5) (World Bank, 2018).

Despite the shortcomings of the Soviet state and political system, informal institutions served keep the economy and society afloat (Gel'man, 2004; Ledeneva, 2013).⁶ The ensuing collapse of the capacity of the state and its formal institutions led to a takeover of informal institutions, and arbitrary rule. The 1990s saw a weak state, strong interest groups (oligarchs, regional leaders) and state capture: distortion of the preparation of legislation or implementation rules for private / network benefits. Since 2000, Putin has restored the formal state, with broad societal support. However, instead of the rule of law, Putin and his administration have moved Russia towards 'dictatorship of law': arbitrary use of the law and sanctions to further the leaderships' interests, as shown when the TV companies lost their independence and the oligarchs their assets in the early 2000s (Gel'man, 2004). All this contributes to consolidating power from private actors to Putin and his close allies. Re-nationalizing or retaining important assets, especially energy resources (oil – Rosneft,⁷ Gazpromneft, gas – Gazprom), in the close innermost circles and under political control ensures that the interests of key stakeholders rarely diverge from those of the leadership. Still, with state-controlled Rosneft (Farchy, 2016) and Gazpromneft (Henderson & Grushevenko, 2017) accounting for some 42% and 7% of Russia's oil production, respectively, over half the oil is produced by private companies.

I examine the interplay of formal and informal institutions during the process of establishing and implementing APG flaring limitation regulations. What are the vehicles for informal practices? How do they influence the policy-making process, and ultimately the level of APG flaring? I apply New Institutionalism to explore the interplay of formal and informal institutions on Russian oil companies: how is this interplay reflected in their behaviour and interests?

My understanding of informal institutions in Russia stems from Russia/transition studies. Soviet informal institutions have mostly remained intact throughout transition (Oxenstierna, 2015). *Sistema* (governance based on informal networks of power; see Ledeneva, 2013) or an administrative regime (the parallel world of informal relations, factional conflict, and para-constitutional political practices) pairs the formal constitutional order in what Sakwa (2010) calls the dual state. In particular, I draw on Gel'man (2012), who argues that Russia's formal and informal institutions should be understood as an embedded, symbiotic relationship, whereby informal practices contrary to the spirit of existing laws often become formalized through legislation.

Russia's APG flaring policies remain under-researched (Loe and Ladehaug, 2012; Røland, 2010; Vanadzina et al., 2015) although brief overviews of the regulatory framework have been published (Korppoo and Kokorin, 2015; Korppoo et al., 2016). Some analysis is available in less-academic formats, especially by WWF Russia (Kiryushin et al., 2013; Knizhnikov and Poussenkova, 2009; Knizhnikov et al., 2015; Kutepova and Knizhnikov, 2010; Kutepova et al., 2011;) as well as others (Carbon Limits, 2013; IEA, 2014; Vygon et al., 2012). While 'institutions' commonly appear in analyses of sociotechnical regimes, the term is often not defined, or there are only general mentions of the basic concepts of

⁶ See Gel'man 2004 for in-depth analysis of the origins of the Russian informal institutions beyond the Soviet tradition.

⁷ See Poussenkova (2007) on the state-controlled Rosneft's decline in the 1990s as a result of loans-for-shares privatizations of state assets to support President Yeltsin's re-election campaign, and the recovery and rise of Russia's leading oil company in the 2000s when the Putin administration started stripping the oligarchs of their assets.

institutionalism, and few authors draw on institutionalism systematically (Andrews-Speed 2016, p.221). That applies also to studies of Russian energy policy, with the few exceptions of Locatelli and Rossiaud (2011), and Kalyushnova and Nygaard (2008). This study adds APG policy to these systematic analyses of institutions in Russian energy policy-making and policy-implementation processes.

2. Background

The volumes of APG flared in Russia have been decreasing steadily, although actual target had not been met by 2015 (see Tables 2 and 3). It is unclear, however, how reliable these data are. Table 3 shows a significant discrepancy between Russian statistics on APG flaring and NOAA satellite data. This gap might indicate underreported APG flaring; but it must be noted that the data-collection methods differ greatly.⁸

Table 2. APG utilized in Russia, 2011–2015

	2011	2012	2013	2014	2015	2016
<i>APG utilized, % of total APG produced</i>	75.5	76.2	80.6	85.5	88.2	88.7

Source: Artamonova 2016 (CDU TEK); Ministry of Natural Resources written communication to this project.

Table 3. APG flaring in Russia, 2008–2016, based on statistics and satellite data

	2008	2009	2010	2011	2012	2013	2014	2015	2016
<i>CDU TEK</i>	15.1	13.5	15.5	16.7	17.1	16.2	12.3	10.5	12.4
<i>NOAA</i>	N/A	N/A	N/A	N/A	20.5	18.0	16.2	16.8	19.4

Unit: bcm

Data sources: Artamonova (2016); Carbon Limits (2013, p.13); NOAA website:

http://ngdc.noaa.gov/eog/viirs/download_global_flare.html. Further clarification was received from the World Bank (main publiciser of the NOAA data) on the division of the publicly available data into APG and non-APG flaring.

Two caveats apply to the comparability of the data: First, the accuracy of the flared gas volume estimates of VIIRS (NOAA method) is rated at $\pm 9.5\%$. Russian data is specially filtered to ensure that only associated petroleum gas flares are included in the data. Second, due to the assumed measurement temperature differences, 1 billion cubic metres of natural gas by the International Energy Agency standard is equivalent to 1.017 billion cubic metres of natural gas by the Russian standard (IEA 2011, p.304), which has *not* been adjusted here. However, even taking these into account, the gap between the data sets remains significant.

Table 4 shows that performance still varies among oil companies, although the worst performers have been improving significantly since 2012. The state-dominated Rosneft and Gazpromneft had the lowest APG utilization levels when the 5% rule first entered into force. Rosneft is by far Russia's largest producer of APG, followed by Lukoil, Surgutneftegas and Gazpromneft: these companies account for 81.7% of Russia's total APG production. Private companies took a more active approach to APG use already before 2012, with the state-controlled companies catching up during 2013–2015. The amount invested in APG utilization has been estimated at RUB 200 bln for 2012–2014 (Donskoy, 2015).

⁸ International comparisons with Russian oil and gas data are difficult due to unclear statistical practices also in general (Simola & Solanko, 2017, pp.20–22).

Table 4. APG production and utilization, by companies, %

	Share of APG production 2015, %	Share of APG utilized, %			
		2012	2013	2014	2015
<i>Rosneft</i>	44.8	54	70	81	88
<i>Lukoil</i>	14.1	88	88	90	92
<i>Surgutneftgas</i>	11.7	99	99	99	99
<i>Gazpromneft</i>	11.1	69	80	81	80
<i>Russneft</i>	1.7	N/A	N/A	93	95
<i>Slavneft</i>	1.3	N/A	N/A	82	87
<i>Tatneft</i>	1.2	95	95	95	96
<i>Bashneft</i>	1.0	75	75	75	75

Data sources: Share of production: Novak (2015); Share of utilization: WWF data on APG utilization, except 2015: companies' annual reports.

In 2015, the share of APG in Russian gas supplies was 14.1% – up from 9.1% in 2012, when the flaring limitation entered into force (Table 1); APG production has increased by 30% due to the introduction of new oilfields during 2011–2015 (Artamonova, 2016). In 2015, 50.3% of the APG was processed or fed into the Gazprom pipeline system; 20% was used by the companies themselves, and 7% was injected back to the wells (ibid.).

The Russian state budget is dependent on the oil sector. The main challenge in taxation is to ensure a balance between state budget revenues while allowing sufficient profit to maintain extraction levels; production from many large Soviet-era oilfields has peaked and is starting to decline (IEA, 2014, pp.144–47; RT, 9 March 2016). The state also has an interest in diversifying the economy: for instance, President Putin has been advocating the processing of APG into products for the domestic market to replace imports (Latuhina, 2013; Kolesnikov, 2013).

3. Formal legal framework for APG flaring limitations

3.1 Legal basis

In 2009, Government Decree 7 introduced a 5% limit to flaring APG from 2012, with specific penalty fees for exceeding this limit as well as for non-metered flaring (Russian government 2009). In 2012, Decree 7 was amended and partly replaced by Government Decree 1148 (Russian Government, 2012), which established even higher fines for exceeding the limit, as well as significant exemptions to these rules. In December 2016, the Russian government adopted revisions to N1148 in regulation N1381.

Exempted from these limits are oilfields with small emissions; likewise, flaring during maintenance, and new oilfields for the first three years of their development. Further, oil producers may pool their emissions between their operational units when calculating compliance with the law, and deduct expenses from fines to cover the costs of investments in projects to promote value-added use of APG. MNR Order 274 set more specific rules for reimbursement of APG utilization investment costs (Ministry of Natural Resources, 2013).

To facilitate access to the Gazprom pipeline network for pipeline-quality dry gas processed from APG, the MoE, the MNR and the Federal Antimonopoly Service passed a joint Order (2010) establishing a commission to monitor Gazprom's policy of allowing APG products into the network. A 2012 amendment to previous legislation ensured dry gas priority access

to Gazprom pipelines, subject to capacity (Russian Federation, 2012). Further, Article 32 of the Federal Law on Electric Power Industry was amended to facilitate priority grid access for APG-powered electricity production (Russian Federation, 2010).

3.2 Pollution fees system and APG fees

In Russia, all industrial activities harmful to the environment must obtain an environmental permit. Permits are valid for one year, and the issuing agency Rosprirodnadzor reserves the right to inspection. The permit establishes environmental limit values (ELVs) as well as temporary emission limit values (TELVs) which generally set values close to the actual pollution levels of the company (OECD, 2004, p.8; Ratsiborinskaya, 2010, pp. 13–16). The environmental fees paid by companies may be seen as a use-charge for the environment. A *basic fee* is charged for emissions within ELVs, and an *increased fee*, roughly fivefold, for exceeding ELVs, but not TELVs; there is a further fivefold *excessive pollution fee* for emissions exceeding TELVs or emitted without an environmental permit (Ratsiborinskaya, 2010, p.19; Russian Government, 1992, 2003).

Although similar in approach, the APG regulations extend beyond the fees system, by raising fees annually as well as establishing the 5% limit to flaring. Decree N7 introduced the obligation to utilize 95% of APG produced; it also set an additional multiplier of 4.5 to the *excessive pollution fee* for exceeding the allowed 5%, as well as a multiplier of 6 for flaring without metering devices, from 1 January 2012. Decree N1148 added higher multipliers (12 for 2013; 25 for 2014), plus additional multipliers to take into account environmentally sensitive areas and a further multiplier of 2 for the Far North, Baikal and other environmentally sensitive areas.

The fines system is currently under reform; the old system of ELVs and TELVs will be used until 2020 (Russian Federation, 2014; Russian Government, 2016a). In 2016, N913 cancelled some regulations referred to in the key fine formulas of N1148, and N1381 revised the formulas to correspond better with the ongoing reform, the new fines system, rhetoric and practice (Russian government, 2016a; Russian government, 2016b).

Pollution fees for excessive and unmetered APG flaring have become significant since 2003, due to higher multipliers of basic fees; N1381 kept the fee for unmetered flaring unchanged, but increased the multiplier for excessive flaring to 100 from 2020. In 2017, this multiplier was cut into 25 for new offshore fields during 2020-2030 (Russian Government, 2017). Importantly, the exemptions from paying fees reduce the economic burden of oil companies significantly. Minister of Natural Resources, Sergey Donskoy (2015, p.6), estimated that the mechanism of offsetting fees against investments cut the fees from RUB 34.9 bln to 2 bln in 2014. Investments made in order to establish APG utilization infrastructure accounted for RUB 75.5 bln the same year – indicating that exempted fee payments covered 43.5% of the investments made. N1381 allowed offsetting fees against documented advance payments in addition to completed APG utilization projects.

3.3 Subsoil use licenses

Subsoil use licensing agreements include the terms and conditions of compliance with standards of environmental protection and safety. To integrate the use of APG into new licenses of subsoil use in connection with new hydrocarbon deposits, Government Resolution N118 on new mineral deposits stipulates that design documents for such facilities shall include measures for using APG in order to fulfil environmental regulations (Russian Government, 2010). Such licenses are issued and monitored by Rosnedra, a sub-agency of the

MNR, which is the main agency regulating the exploration and extraction of oil and gas, and by Rosprirodnadzor as regards compliance with environmental regulations. A license may be revoked for various reasons, including systematic violations of the established rules for subsoil use (International business publications USA, 2015, pp. 141–42)

4. Method and approach

In analysing the reasons for the low performance of APG flaring mitigation actions in comparison to the 5% target, I regard the processes of policy formulation and implementation as an interplay of formal and informal institutions. Weak or non-existing formal institutions open opportunities for interests exogenous to the actual policy regimes (Puffer et al., 2010). Such gaps may become vehicles for corruption, as when civil servants and power networks seek advantages by distorting the implementation of legislation (Hellman et al., 2000; Ledeneva 2013; Omelyanchuk, 2001). I explore the impacts of the weakness and selective use of formal institutions and the central role of informal ones, to establish their significance to policy *outputs* (procedural and regulatory results of policy-making processes), and *outcomes* (climate-mitigation actions created by such policies).

Formal institutions are normally defined as rules and procedures that are created, communicated and enforced through channels widely accepted as official, whereas *informal institutions* are socially shared rules, usually unwritten, that are created, communicated and enforced outside of officially sanctioned channels (Helmke and Levitsky, 2004, p. 747). Gel'man (2012, pp.136–39) has criticized the applicability of this standard theoretical juxtaposition of formal and informal institutions to the Russian system, arguing that many informal actions are actually conducted according to formal regulations. Such *subversive institutions* have an institutional core distorted from the inside or even transformed into totally opposite 'rules of the game' under a formal shell of democracy and the rule of law (Gel'man, 2012, p. 139). Also I have identified gaps in regulation that do not fit either of these two categories: 'grey areas' left in regulations when an established activity is not defined in detail, making an informal approach the only option for implementation. This leaves space for potential distortion of the spirit of the regulation. In theory, such gaps could occur accidentally as a result of shortcomings in policy preparation or decision-making processes – or be created deliberately in order to provide 'grazing fields' to network members (Ledeneva, 2013). Thus, I categorize the informal practices encountered between 'standard' informal institutions (socially shared unwritten rules), subversive institutions (distorted rules of the game) and gaps in regulation (grey areas leading to informal practices).

New institutionalism has been chosen as a further explanatory theoretical lens because it can shed light on the behaviour and interests of oil companies facing new regulatory pressures (Powell and DiMaggio 1991, p.9), and it sees organizations as deeply embedded in social and political environments (Powell, 2008). I examine how Russia's oil companies attempt to gain legitimacy in the eyes of key relevant actors – which is claimed to be the main goal of organizations for winning resources from those actors (Staniland, 2010, p.254). Further, I examine whether the impact of informal institutions can be detected in oil-company behaviour and interests. Three types of actions seen as institutional isomorphism are examined: coercive (external actors compel conformity mainly through law or regulation); mimetic (uncertainty motivates organizations to adopt the practices of their most successful competitors), and normative (strong professional interests drive the adoption of specific values and beliefs by all organizations in the field) (Powell and DiMaggio, 1991, p.67). However, legitimacy entails more than merely responding to isomorphic pressure. It also has a 'ceremonial' dimension: an organization must be *seen to respond* (Meyer and Rowan, 1977).

Interviews and material

Between September 2015 and November 2016, nine interviews were conducted by Skype/phone, and nine face-to-face, mostly in Moscow. It was difficult to gain access to Russian oil companies, and only three agreed to interviews. One other person interviewed had worked for a Russian oil company previously, and one Russian industrial company worked closely with the oil companies on APG. The other interviewees were experts in their own fields relevant to this study; many of them were Russian. Some had been involved in the Joint Implementation mechanism projects on APG in Russia 2008–2012.⁹ Two key informants were interviewed a second time for further information. The list of interviewees is available in the Appendix. Interviewees are referred to in the text by number; names and organizations are not supplied, given the personal risk involved in agreeing to be interviewed on a politically sensitive issue. Many potential informants from oil companies as well as expert organizations and administrative units declined to be interviewed, or promised but later withdrew. Oil companies and state administration generally have strict procedures regarding interviews, which many potential informants use to avoid personal risk regardless of promised anonymity. In addition, three written communications on the interview questionnaire were received from organizations, including the MNR.

Interviews were semi-structured. A set of questions was developed during the process of material collection, adjusted to the expertise of each interviewee. Newspaper material on APG 2012–2016 was collected via Integrum news service, to map the latest developments and debates. The search words recovered many articles, but only a handful contained information beyond mentioning the APG issue.

Interview content was coded to identify signs of potential informal practices and weaknesses in formal rules as well as company interests. Oil companies were not keen to discuss possible informal practices, instead emphasizing the formal features of regulation and implementation. Most informal practices and evidence on company interests were identified from interviews with experts working for organizations other than oil companies. Written materials, mostly newspaper articles identified through the Integrum search, were used to detect and triangulate the evidence identified.

5. Informal practices

Ministry of Energy: representative of oil companies

Interviewees identified the Ministry of Energy (MoE) as the representative of oil companies in the policy formulation process, especially the state company Rosneft (interviewees 2, 4, 6, 11). The MoE has opposed proposals by other ministries and agencies to ban the operation of oilfields not equipped with APG meters and to introduce a flat limit of flaring not more than 5% of APG for all licensing areas (Knizhnikov and Poussenkova, 2009, p.9). Its own proposals have included a grace period on APG fines, due to the difficulties in using imported technology and equipment to utilize APG because of international sanctions (Skorlygina and Melnikov, 2014); not charging fines from early-stage fields; and considering investments in APG use as fines payments (Melnikov, 2012). Three out of these five lobbying points worked in favour of the MoE and oil companies. Two interviewees (1, 14) also mentioned the

⁹ Joint Implementation (JI) is one of the flexible mechanisms of the Kyoto Protocol. It allows industrialized countries to invest in emissions reduction projects in other industrialized countries, in return receiving Emission Reduction Units (ERUs) which can be used to offset domestic emissions in order to achieve compliance under the Protocol commitments.

involvement of persons with knowledge and contacts from oil companies at the MoE to facilitate exchange of views and ideas.

Metering

Regulations 7 and 1148 included specific high fines for non-metered flaring, presumably to incentivize the installation of meters. According to MoE Order 961 (2013), producers of APG must account for its supply, deliveries to and from others, own use, losses and flaring. However, non-metered flaring is not directly illegal, as meters are not explicitly mentioned. Due to this equivocality, and lack of access to interviewees with experience of non-meter-based fine calculations, metering activity could not be described in detail. The analysis below thus builds on somewhat fragmented data.

Flow meters are widely used; they can measure APG production only, or be installed before high- and low-pressure APG flares, and also in the low-pressure APG supply mostly transporting APG to utilization. As APG fines are calculated in terms of the pollutants emitted through flaring, and these are difficult to measure, metering data are used to calculate the pollution based on content analysis of the APG produced by the oilfield. (Interviews with one international and two Russian experts, 8, 12, 16) Leaks are typically calculated as annual normative leaks rather than actual leaks; this applies for instance to methane which escapes the flare, sometimes significantly exceeding the norm (Interview with foreign expert, 8).

In the absence of APG meters, amounts are calculated based on oil-to-gas ratio and established calculation methodologies. Although the APG-specific regulations provide no explanation of how, without meters, flaring should be estimated and fined in order to apply the higher fine multiplier, the calculation method is applied (interview with Russian expert, 14).

The calculation method allows for interpretations and informal practices. Two experts interviewed (1, 14) explained that oil companies can choose among at least three calculation methods, to generate data more favourable than the outcome of actual metering would be. For example, although one oil company found the cost of meter installation negligible, the calculation method was deemed preferable: ‘calculating APG on paper...is very approximate and allows rounding things up’ (Russian expert interview 14).

Some oil companies recognized the high cost of unmetered flaring due to higher fees, and therefore opted to have meters installed. One oil company representative (6) saw manipulating the data as risky: the costs of being caught in an inspection – in practice Rosprirodnadzor measuring and charging a higher fine level – are greater than reporting accurately metered data. In its written communication (2017), the MNR stated that all the major oil companies have meters in place, and considered this as sufficient. However, Rosprirodnadzor reported in 2015 that only 60% of oil companies had meters, and even then, calculation methods are often applied instead; and they expressed lack of trust in the quality of APG data provided by oil companies (Kirillova, 2015, pp. 6–7, 11–12; Russian expert interview 1). Main ways whereby oil companies violate regulations include not using APG systems at new fields, and deviations in real indexes of production and use of APG of projects; some companies have disclosed no APG data whatsoever (Kirillova, 2015, p.8).

Hiding flaring by means of the calculation method could explain the discrepancies between Russian and international flaring data.¹⁰ Also technical flaring and emergency flaring

¹⁰ The satellite data originally quoted by the World Bank were widely criticized in Russia as being incorrect. That was probably so, compared to the recent methodology developed by Elvidge et al. (2016), which can

allowances can provide further room for manoeuvring and hiding flaring; according to one Russian expert interview, they may account for up to 30% of APG, while the MoE reports decreasing numbers of technological losses, down from average 1.14% in 2010 to 0.33% in 2016 (Ministry of Energy, 2016).

Subsoil-use licenses

The rules established in subsoil-use licenses include the obligation to utilize 95% of APG (Podobedova, 2013; Petrov, 2013), and the main regulatory agency Rosnedra was reported to have rejected applications which did not include APG utilization in 2012 (Kostin, 2012). According to Rospirodnadzor, not fulfilling the license requirements on using APG is a main way that companies violate regulations (Kirillova, 2015, p.8).

According to the subsoil-use law, a license may be withdrawn for non-compliance with the rules of the license (Russian Federation 1992). However, the MNR has provided public assurance to oil companies that actual withdrawal of a license for environmental violations would be a very extreme case, and also undesirable since it would reduce oil production (Melnikov, 2012; Parfenova, 2012). Indeed, this is a fundamental problem with the APG regulations: it is difficult to convince oil companies to comply as long as non-compliance is tolerated (Rubanov, 2012).

Access to gas pipeline network

Despite the legal framework for facilitating access to the gas pipeline network for APG, conditions remain unequal among APG producers and do not always allow deliveries of APG to users (*Neft i kapital*, 25 October 2016; Zizhkin, 2014). Prokshin (2012) claims that the leading gas-processing company, Sibur, has no problem gaining access to Gazprom pipelines – but the legal formulation which provides APG ‘access to free capacity’ also eliminates the idea of priority access.

One Russian expert interviewee (14) said that there were always problems with access to Gazprom pipelines, as the company exercised its right to deny access when a pipeline was working at full capacity with Gazprom’s own gas. However, a foreign expert interviewee (13) held that access to Gazprom pipelines was not problematic for a state company: it was a matter to be agreed on by the heads of the companies in question. Another Russian expert interviewee (15) maintained that Gazprom is not keen to buy APG from smaller producers, and smaller producers are dissatisfied with the low prices offered.

To avoid having to negotiate with Gazprom on pipeline access, many companies have chosen other options for APG utilization – including generating electricity and/or heat locally, using containers to transport gas, and investing in own gas-processing facilities. The lack of access to Gazprom pipelines has also been used as a lobbying point by oil companies who claim that the only options left are flaring or discontinuing oil production (Russian expert interview 14).

Exemptions

According to N1148, subsoil users (oil companies) are allowed either a three-year period of initial development of a new oilfield without any fines for burning APG, or the same freedom until the field has reached 5% of depletion of its oil reserves – whichever comes last. Also

differentiate between actual APG flares and other flares far more accurately. However, a steady difference remains between the Russian data and satellite data, as shown in Table 3.

small fields¹¹ are exempt from fines if they have meters in use (Russian Federation, 2012), and new offshore fields will be allowed a significantly lower fee during 2020-30 (Russian Government, 2017). Exemptions due to planned maintenance shutdowns of gas-processing facilities add to the APG flaring allowed without fines (Clause 16 of 274), without providing incentives to resume activities as soon as possible (Aksenov, 2016).

Aksenov (2016) argues that some fields experience the ‘champagne bottle-cork’ phenomenon – much of the gas bursts out when the first oil extraction begins – and the early-stage field exemption leads to significant additional flaring. However, some experts interviewed (8, written communication 14 January 2016) say this depends on the field and on the practices chosen by the company. In practice, gas is often injected back into the pool, to maintain pressure.

Rostekhpertiza has estimated that the exemptions in N1148 allow flaring some 18–19% of APG without fines (including the 5% which is allowed) – due to measurement errors, exemptions for flaring during maintenance stops, and the low quality of APG – and a further 30–40% due to the exemptions of small and new oilfields. Thus, in theory up to 60% of APG could be flared without fines (Aksenov et al., 2013). According to the Minister of Natural Resources (Donskoy, 2015), only half of the fields which qualify for these exemptions actually use them, and the rest utilize APG. In 2014, such exempt fields accounted for 22% of flaring or 7% of total APG produced, while 82% of exempt flaring originated from early-stage fields. A significant ‘grey’ area has thus been established regarding flaring, even though the exemptions are formalized in the regulation.

Reimbursement of fines against APG investments

Reimbursement of environmental investments against environmental fines has previously been used in other fields of environmental policy. The idea of compensating environmental investments was included in the 1991 law ‘On Environmental Protection’ (Kochtceeva, 2009, p.139), in the 1992/1993 methodological regulations on collection of pollution charges (Gadelshina, 2014; OECD 2004, p.11), and to some extent in the 2002 Federal Law ‘On Environmental Protection’ (Russian Federation, 2002).¹² However, the activity continues without sufficient approval process by the environmental authorities. Expert interviewees (1, 11) argued that in practice it is very difficult for the authorities to challenge the reports from oil companies; one also questioned whether all investments reimbursed were actually necessary for APG utilization. The reimbursement practice has a significant impact on fines: the Minister of Natural Resources has estimated that less than 6% of fines were collected in 2014 as a result of the mechanism (Donskoy, 2015, p.7). N1381 revisions further widen the reimbursement right of companies by adding the possibility of reimbursement for unfinished APG utilization projects.

Fines: negotiations and bribes

Negotiations with local-level environmental authorities on APG fines were mentioned by three Russian experts interviewed (11, 12, 14), and noted as a common interest for reaching agreement on feasible solutions that do not seriously harm the company – for instance, by jeopardizing workplaces. This was explained as being an unwritten rule for the environmental authorities rather than personal-level corruption (Russian expert interview 12). In deciding

¹¹ Where annual volumes of APG production do not exceed 5 million cubic meters, or the volumetric content of non-hydrocarbon components in APG is more than 50%.

¹² Regulation N182 provides rules on what must be reported for reimbursement of APG investment costs (Rosprirodnadzor, 2014).

which companies to target specifically with environmental fines, the environmental authorities account of factors like the financial situation of the sector / company, its owner and contacts, and links to the state and the regional level (Russian expert interview 12).

Interviewees also mentioned the likelihood of bribes being paid to local-level environmental authorities in order to enable company-level agreements on fines and findings, and support in such cases by local governors, although company representatives (2, 4, 6) denied such practices, and there is no direct evidence. However, given the court cases against local Rosprirodnadzor employees charged with accepting bribes in other areas of environmental protection (Corrupcia, 2 December 2014; Crime Russia, 2 September 2016), the considerable literature on widespread corruption in the Russian public administration (see e.g. Melville and Mironyuj, 2016; Obolonskii and Barabashev, 2014; Peregudov, 2009) and several mentions of this practice by interviewees, bribery and manipulation do not appear unlikely.

Such opportunities may not be available to all, especially smaller companies, which have also expressed fear over environmental inspections and related fines, sometimes directed at certain individuals (Russian expert interviewee 16). Some companies, Rosneft in particular, are seen as being more powerful than others, and with better chances of negotiating fines (two Russian and one foreign expert interviewees, 11, 13, 14). Two Russian expert interviewees (1, 14) noted that it has been difficult for Rosprirodnadzor to win court cases against companies. Further, the low number of inspectors makes it impossible to ensure sufficient inspection of companies (Russian expert interview 11).

Lobbying by oil companies

The oil sector is of central importance to the Russian economy, and thus enjoys considerable political influence. Oil companies commonly claim that APG penalties will make oil production unprofitable or even stop it, and refer to falling tax revenues, even declaring ‘we will hold up oil production’ as a tool to lobby against the APG rules (Russian expert interview 14; Melnikov, 2012). The requirement about utilizing APG has been considered unfair, since gaining access to Gazprom pipelines is difficult and the prices Sibur pays for APG make its collection unprofitable (Russian expert interview 14). The sector has successfully lobbied various revisions to APG regulations, including greenfields and remote fields being treated differently as regards fines (Melnikov, 2012). However, efforts to postpone the entry into force of the APG flaring limit and related fines failed to bring official postponement of the 2012 deadline. Regulation N7, passed in January 2009, was to enter into force only from 2012; N1148 was passed in November 2012, for entry into force from January 2013.

In January 2015, the heads of Gazpromneft, Surgutneftegas, Lukoil, Bashneft and Tatneft approached President Putin to discuss ways of supporting the oil companies under conditions of low oil price, including a proposal for lowering the multipliers for APG fines by two years. The Minister of Natural Resources responded that shelving measures for using APG could not be deemed ‘reducing administrative barriers’, as formulated by the oil companies (MNR, 2015). The MNR had previously noted that the APG rules were made known some years before entering into force, so the oil companies should have acted earlier (Melnikov, 2012).

Beyond direct letters to agencies and the President, important channels for oil companies to lobby on APG include industrial associations, especially the Russian Union of Industrialists and Entrepreneurs (RSPP) and advisory boards of state agencies, also involving the presidential administration. One interviewee (14) noted that oil companies can block decisions because these are taken elsewhere than in the government, for instance, in the presidential administration and ministries. Two interviewees (one expert, one oil company, 6,

14) argued that APG should be seen in the wider context of negotiations between oil companies and the state, where the taxes paid by oil companies to the state are a central point.

State-controlled companies seem less worried about non-compliance than private companies. Gazpromneft has even stated that it will comply only from 2020 (Misharin, 2015). According to three Russian expert interviewees (11, 13, 14), ‘certain companies’ [= Rosneft] wield far greater political clout with the authorities than do other oil companies.

Discussion

Informality of institutions: ‘standard’, subversive or gap in regulation?

It is difficult to define formal and informal institutions, given the complex duality of the Russian political and administrative system. Some elements clearly represent ‘standard’ informal practices (socially shared unwritten rules); others can be categorized as subversive institutions because they contradict the spirit of the 5% APG limitation, despite being formalized in regulations (distorted rules of the game); and finally, there are gaps in regulations open to, even requiring, informal practices – grey areas leading to informal practices.

The Ministry of Energy as a representative of oil companies: Consultations with the oil sector are announced on the MoE website, so this role is officially recognized. However, how much influence the oil companies have (or are claimed to have) on the Ministry’s position could be seen as a less formal arrangement, and thus a ‘standard’ informal practice. Further, individuals’ double roles at the Ministry clearly undermines their public service role, and is another ‘standard’ informal practice.

Metering: The law obliges APG producers to account for APG and its movements, although the term ‘meter’ is not used. However, the APG regulations establish monetary punishment for non-metered flaring, which Rosprirodnadzor reports as being widespread. Further, the APG regulations do not define how this economic yardstick – higher multiplier of a fine for non-metered flaring – is applied in practice. None of the oil company representatives interviewed admitted the lack of meters, so such practices could not be verified. The calculation methods described in separate regulations are probably used here; however, there remains a significant grey area, a gap, in regulation.

Subsoil-use licenses: The 5% limit is included among the environmental requirements concerning subsoil use; however, the authorities have publicly stated that violating this condition will not result in license withdrawal. Thus, this can be seen as a ‘standard’ informal practice.

Pipeline access: The regulation on pipeline access for APG in order to transport it to processing seems to include an idea of priority access; however, the gas pipeline operator, Gazprom, has granted *de facto* veto rights, based on the availability of pipeline capacity. APG producers have questioned the transparency of its decisions: indeed, the practice seems to fly in the face of the main idea of the regulation itself. This may approach a ‘subversive institution’: Gazprom has a legal right to deny access for gas that was meant to be prioritized.

Exemptions: The exemptions to the 5% rule as introduced in regulation 1148 certainly relaxed the actual flaring level allowed to Russian oil companies. Estimates of actual allowed flaring without fines or with only the basic fine (multiplier 1) vary between 30% and 60%; reports on actual exemptions indicate that the real impact may be somewhat lower. This qualifies as a ‘subversive institution’.

Reimbursement of fines: Compensation for environmental investments cannot be seen as an informal practice as such: this is included in the broader legislative framework in Russia, although its inclusion in Regulation 1148 was probably the outcome of informal lobbying on the part of oil companies. However, even though the reporting on the investments is clearly established, weak oversight makes reimbursement activity poorly regulated and potentially informal in practice. This gap might be used for bending the rules.

Fines: Oil companies do not necessarily have a level playing-field as regards payment of fines. There may be agreements with the authorities depending on the location and networks, while other companies avoid getting involved in agreements with authorities. One interviewee (13) argued that since the practice of agreeing fines with the authorities is widespread and not the individual choice of the local authorities, it could be seen as a parallel system of informal rules. In terms of categories, this is a 'standard' case of informal, unwritten rules used in a dual role beside written ones.

Lobbying: The lobbying practices of Russia's oil companies can be considered as standard, and not particularly informal, even in a global perspective. However, if their influence spreads directly into decision-making – which seems to have an informal nature if it takes place outside of democratic institutions (in advisory boards or the presidential administration) – then it should be seen as a 'standard' informal practice.

Different types of vehicles for informal practices illustrate the variety of ways not only to get around the formal rules, but also to subvert them into informal practices. The actors involved in the informal practices under the vehicles include also state representatives and state-controlled companies. Thus, the political elite cannot be genuinely against the use of the informal practices. The similarities with the concepts of transition studies; power networks, dual state and selective use of law, are obvious here, as many of the informal practices outlined could also be interpreted through them.

Interests of oil companies through the lens of New Institutionalism

All interviewed company representatives maintain that their companies are doing everything possible to comply with the 5% limitation, and that the regulations must be followed. Further, they say that all oil companies are treated equally by the authorities and there is no space for negotiation when it comes to fine payments – for example: 'negotiations with Rosprirodnadzor are not possible', 'legislation is equal to all' and 'Rostekhnadzor controls the industry strictly and even takes away licenses' (interviewees 2, 4, 6). However, the experts interviewed for this study hold that informal practices are widespread, as demonstrated above, and make it easier to 'comply'. Informal institutions serve to soften the coercive pressure and significantly change the behaviour of oil companies, whereas non-compliance could have serious consequences, like cancellation of the subsoil-use license. However, exaggerating the coercive pressure seems to be in the interests of the oil companies, perhaps in order to gain legitimacy. New Institutionalism considers this as a 'ceremonial' element: companies want *to be seen* as struggling with the demanding regulations.

However, not all companies make use of informal options for softening the coercive pressure (Interviews 11, 15). Following the rules in order to achieve 'European-level' practices was reported (interviewee 11) to be in the interests of some of the more internationally-oriented private oil companies. They are said to avoid informal practices, even though that would seem to be allowed without significant risks to legitimacy, as shown above. According to one Russian expert interviewed (13), it was in the interest of these companies to enhance their reputation, so as to make it easier for them to tap into international, or generally market-

based, financial resources. This could be considered as *mimetic institutional isomorphism*. Declining to use informal practices could be at least partly to avoid generating evidence of wrong-doing, which can be used to justify selective use of punishments to achieve political goals. Ledeneva (2013, pp.58-59) calls such evidence *kompromat*. Due to the absence of good-quality data on APG flaring, and the known discrepancies with data collection and reporting, it is impossible to substantiate how genuine these claims of avoidance may be or whether such statements are merely another version of the ceremonial element. Regardless, informal practices are likely to influence the realities of oil companies. Even if they complied fully with all the rules and regulations without informal practices, it might be difficult to gain legitimacy through mimetic actions in the international level. That could influence the outcome of the flaring regulation, as companies willing to invest more in order to achieve full compliance might lack access to sufficient financial resources.

A dual approach to APG utilization is evident in the Russian oil sector. On one hand, it seems to be in the interests of all companies to demonstrate some activity and awareness of the problem, as also shown by the decreasing level of APG flaring; on the other hand, the normative understanding, with the help of informal institutions, in reality allows at least some APG flaring beyond the established limit. New Institutionalism calls this *normative institutional isomorphism*: as strong interests drive the adoption of beliefs and values in the sector. Oil company interviewees had picked up the government's buzzwords: they stressed that flaring APG is wasteful, and even criticized the government for allowing inefficient ways of using APG. However, as a group they also made efforts to get the 5% rule watered down, lobbying for additional exemptions and flexibilities. That, as well as the use of other informal practices, undermined the target set.

Experts interviewed held that the oil sector had never taken APG utilization seriously. This may be part of a broader cultural undercurrent in Russia: one interviewee (12) described environmental protection as 'an issue which can be done to the extent that it does not harm the industry'. Compliance costs occurring due to environmental protection are perhaps considered as such harm. One oil company representative (2) said: 'It is important to utilize APG effectively and gain profit from it'. Others questioned whether APG should be used at any cost, or whether such activity must be economically efficient (Gazprom June 2012, p.17).

Also within the government, exemptions and informal practices are allowed and the slow process towards compliance has recently even labelled as 'sufficient' (Ministry of Natural Resources, 2016). New Institutionalism would label the interests behind launching the APG policy as *mimetic* of the Western approach to environmental issues – but with a *ceremonial* aspect, as the policy outcome, the overall target level, was never achieved. The interests behind this approach are probably linked to *gaining legitimacy*, as shown by Kokorin and Korppoo (2013) with other climate-mitigation policies. Perhaps this is only natural: the Russian leadership's heavy dependence on tax revenues from the oil sector and the state involvement in the oil sector, through state control over a significant share of oil production and ties through informal networks, make it an involved and not a neutral regulating party.

Conclusions and Policy Implications

Although Russia's APG policy remains only partly implemented, the 5% flaring limit has put coercive pressure on the oil companies and made a difference regarding policy output: flaring has been reduced from a quarter of APG to less than 12%. That is a significant achievement; however, better data are needed here.

This study identified several informal institutions that potentially influence the policy outputs and policy outcomes, and thus made a contribution to Russian energy policy research, which typically uses the concept of informal institutions in a much less defined and structured manner. However, the amount of hard evidence of the informal institutions identified here varies. The vehicles used for conducting informal activities fall into three categories: *standard informal institutions*, *subversive institutions*, and *gaps in regulations*. This study has identified regulatory grey areas which lead to the use of informal institutions, whether created deliberately or accidentally. The former case would mean that informal institutions serve to shape policy outputs as well as policy outcomes, and might approach state capture; however, given the political realities of Putin's Russia, this would probably involve only his closest circles.

Informal practices have significant impact on policy outcomes. Not only is far more flaring allowed in practice as a result of informal practices (exemptions, non-compliance with sub-soil licenses, metering) – it also remains unclear how much is actually flared (metering), and to what extent fines can be avoided (negotiations and bribes) or written off without much oversight (reimbursement of fines). The origins of these informal institutions can be explained, at least partly, by the interests of the politically important oil sector (lobbying by oil companies, role of the MoE) – but some of the explanation stems from the real difficulties involved in utilizing the required amounts of APG, further exacerbated by the informal practices identified here (pipelines access), and perhaps additional elements not captured by this study.

My findings support Gel'man's view that formal and informal institutions in Russia should be understood as entailing an embedded, symbiotic relationship, beyond the standard formal/informal dichotomy. The embeddedness of organizations in their social and political environments, as per New Institutionalism, fits this picture: with the Russian oil sector, the social and political environment includes the strong role of informal institutions and the legitimacy of their use, at least regarding some oil companies. Concepts of transition studies, the dual state, power networks and selective use of law, which illustrate the embeddedness of informal institutions, would also fit many of the informal institutions identified. This is part of the 'black box' of the Russian state administration unobservable to outsiders. The difficulties in interviewing Russian stakeholders suggest that the insiders prefer to keep this reality out of the public eye, perhaps partly due to personal risks.

This study provides a range of examples of informal institutions and their embeddedness in the social and political environment. The MoE has a dual role as representative of the state as well as of the oil companies, while network interests could steer its decisions. That the authorities allow non-compliance with the environmental requirements of sub-soil use licenses, even announcing this publicly, further illustrates the dual state that serves the interests of the oil-revenue dependent leadership and the oil industry alike. What looks like an environmental policy proves to be a ceremonial show with failed policy outcomes in terms of APG, probably aimed at Western buyers of oil. Getting exemptions included in APG regulations will require network contacts, if not state capture, and pervert the spirit of the regulation of achieving maximum 5% flaring of APG. It may be easier to gain access to Gazprom's pipeline with the right contacts, while the state-controlled company's decisions to allow or deny pipeline access could entail an element of selective use of law.

It is in the interest of private companies to be seen as making efforts to comply. Declining legitimacy as a result of benefiting from informal institutions to soften the coercive pressure is not evident in the Russian social and political environment, as at least some oil companies

have remained non-compliant, lobbying for further easing of coercive pressures. Regarding compliance, and the timeline for achieving it, private and state-controlled companies are divided; coercive pressures seem to be harder on the former. Also the selective use of law or not being a member of the right power network may make private companies cautious of breaking the rules. Still, being able to show some policy outcome is obviously in the interests of the political leadership. However, the many informal practices identified indicate that exceptions to the rule have been acceptable to the government. Coercive pressure has been softened by allowing informal practices, in turn weakening the policy outcome of the flaring limitation.

Also relevant here is the general approach to the environment. The normative stand that the oil sector should be required to protect the environment only insofar as this does not harm its activities can help to explain the significant impact of informal institutions on the outcome of the APG flaring regulations in Russia. No detailed lessons can be drawn to other GHG mitigation policies due to the powerful position of the Russian oil sector, but the secondary nature of environmental obligations may apply to other sectors as well, and could help to explain compliance problems with policies intended to deliver GHG reductions or other environmental benefits.

Strong economic and political interests and the wide-spread use of informal institutions make gaining clarity over how much Russia actually flares seem unlikely any time soon. The Russian government estimates that the 5% target will be achieved by the end of the decade, however, it will be difficult to estimate how much of this achievement is as a genuine improvement of the state of the environment. Seeking legitimacy internationally is likely to be one explanatory factor behind policies such as APG flaring target, which contain a ceremonial element for external observers, in addition to the real results.

List of interviewees / informants

Interviews in person:

22.09.2015 Interview 1: Russian expert, Russian consultancy
29.10.2015 Interview 2: Russian expert, Russian oil company
14.01.2016 Interview 3: Russian expert, Russian environmental NGO
08.02.2016 Interview 4: Russian expert, Russian oil company
09.02.2016 Interview 5: Russian expert, International bank
10.08.2016 Interview 6: Russian, expert, Russian oil company
16.11.2016 Interview 7: Foreign expert, foreign consultancy
23.11.2016 Interview 8: Foreign expert, consultancy
25.11.2016 Interview 9: Russian expert, Russian gas processing plant producer

Interviews by Skype/telephone:

02.11.2015 Interview 10: Foreign expert, International organization
11.02.2016 / 01.08.2016 Interview 11: Russian expert, Russian expert organization
22.07.2016 Interview 12: Russian expert, Russian consultancy
02.08.2016 Interview 13: Foreign expert, foreign bank
09.08.2016 / 30.08.2016 Interview 14: Russian expert, foreign university
14.08.2016 Interview 15: Russian expert, Russian gas company
02.09.2016 Interview 16: Russian expert, international verification company

Written communications:

14.01.2016 Russian expert, Russian university
13.10.2016 Russian expert, Russian law firm
13.94.2017 Russian civil servant, MNR

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