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Redefining the Netherlands' Energy Future

Societal Implications of the Nearing End of Dutch Natural Gas



Center for Energy
& Climate

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Executive Summary

For many decades, the large gas field discovered in 1959 in the province of Groningen has been a central pillar of the Dutch welfare state. The availability of natural gas for the domestic industry and households was so self-evident that many generations in the Netherlands still identify with the slogan “*Nederland gasland*” (“The Netherlands is a gas country”). As the end of domestic gas production is getting closer, a mentality shift is urgently required in the Dutch society. It makes the transition away from gas even more complicated than in other European countries and Russia’s invasion of Ukraine adds another layer of complexity in energy policy choices.

Over the years and with the Groningen field as a backbone, the Netherlands have built up a gas infrastructure that extends to all capillaries of society and that currently still supplies around 44% of total energy demand and 69% of households’ energy use. The large Dutch gas reserves also formed the basis for the development of the European gas market and provided up to 18% of the national state’s income (in 1985), as well as an absolute record high of €15.3 billion in absolute terms in 2013 (around 9% of the state’s income at that time).

The management of its domestic gas reserves have always been at the heart of the Netherlands’ energy policies. Two important elements in these policies were the “small fields policy” and the “Dutch Gas Roundabout”. After the discovery of smaller offshore gas fields in the Dutch part of the North Sea in the 1970s, it was decided to spare the Groningen field as a stabilizer of the gas market as much as possible and to first develop and exploit as much as possible the smaller offshore fields. Later, with an anticipated depletion of the Groningen field around 2030, the plan was to develop the Netherlands into a European gas hub and roundabout by building large gas storage and liquified natural gas (LNG) capacities, as well as expanding infrastructure connections to all surrounding countries.

However, the nearing depletion of the Groningen field caused small earthquakes of increasing frequency and magnitude, which led to increasing public protests against Dutch energy and gas policies. They intensified after an earthquake with a magnitude of 3.6 on the Richter scale hit the village of Huizinge and caused substantial damage in a large part of the Groningen province. Subsequently, the public call for more effective climate policies and the phasing out of Groningen gas production became much stronger. This was also expressed by a groundbreaking juridical verdict in which the Non-Governmental Organization (NGO) Urgenda sued the Dutch state for not meeting its climate targets, and by other

environmental juridical verdicts that followed. Consequently, plans for the “Dutch gas roundabout” had to be revised and it was decided that the Groningen field should be closed as early as 2023.

At the same time, Dutch populist parties vehemently opposed to stricter climate policies gained substantial support. So far, no clear solution has been found to ease these increasing societal tensions around energy and other transition policies: With a parliament more divided than ever and after a year of coalition negotiations, the same four-party government coalition that previously resigned was back in office in January 2022.

The new government, headed by liberal party leader Mark Rutte, announced ambitious but also partly controversial climate goals, including the planned construction of two new nuclear power plants and a renewed focus on exploitation of the remaining offshore gas reserves. The Russian invasion of Ukraine led to an intensification and acceleration of these plans, including also new measures such as rapidly expanding LNG capacity, intensifying offshore gas exploitation efforts and boosting production from the Dutch coal power plants. Initiatives were also taken to counter the spike in energy prices, for instance by reducing the existing taxation on energy and by providing subsidies to low-income households.

While Russia’s invasion of Ukraine fueled the Dutch tensions around gas dependence and the energy transition, it is rather the deeper underlying trends that need to be addressed for a successful energy transition in the Netherlands. Three factors stand out:

- First, the mentality shift in society from gas pride and self-evidence to “energy transition pride” still needs to be completed.
- Second, a solution needs to be found to bridge the increasing societal divide between transition supporters and opponents. That needs to be done by providing a credible narrative and concrete benefits to all—including the opponents of transition—, while also anticipating the geo-economic upheavals of this transition.
- And third, it needs to be prevented that rapid but consequential energy decisions taken now—such as once more intensifying the exploitation of domestic offshore gas—strengthen the existing natural gas “lock-in” and continue to fuel controversy within society about which roads should be taken to achieve the energy transition.

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Introduction

Nederland Gasland—“the Netherlands (is a) gas country”—is a well-known slogan that most Dutch know, and probably also will emphasize. Since the 1959 discovery of a large gas field in the village of Slochteren in the Northern province of Groningen, natural gas has not only contributed substantially to economic growth and prosperity of the country. In the 1960s, central gas heating was installed in virtually all households, as well as cooking and hot water supply based on natural gas. Since then, they have become an almost self-evident fact of life in the Netherlands.

Although the share of natural gas has slightly decreased between 1990 and 2019 from 46 to 44% in total energy use, and from 80% to 69% in households’ energy use, this still holds at present.¹ In 2021, total gas demand in the Netherlands amounted to 40 billion cubic meters (bcm), of which 13 bcm were imported.² Some 6 bcm of these imports came from Russia, equal to 15% of total gas demand.³ Since decades, natural gas is also a constant factor in Dutch energy policy, next to other national energy interests and prides such as “Royal Dutch” Shell⁴ and the bulk fossil and refinery harbors in Rotterdam and Amsterdam. With cheap and abundant domestic natural gas, many energy-intensive industries were attracted, and government budgets financed. Over the years, a real political-economic complex reflecting the importance of gas and fossils has been established in the country. The public and private organizations that made up this complex are still operational today.

However, the nearing depletion of the Groningen gas field and large public protests against earthquakes associated with this depletion not only contributed to substantial changes in Dutch energy, climate and economic policies, but also to a still ongoing public mentality shift around energy in the Netherlands. Since the beginning of the Russian invasion of Ukraine in February 2022, this situation is once again in drift and includes a last revival of domestic gas before giving way to more sustainable alternatives.

This paper will therefore discuss the nearing end of Dutch natural gas in a changing society and some of its potential implications in these very turbulent energy times.

1. “Energieverbruik per energiedrager 1990-2019”, CLO, July 2022, available at: www.clo.nl.

2. “Natural gas consumption 4% lower in 2021”, CBS, 3 March 2022, available at: www.cbs.nl.

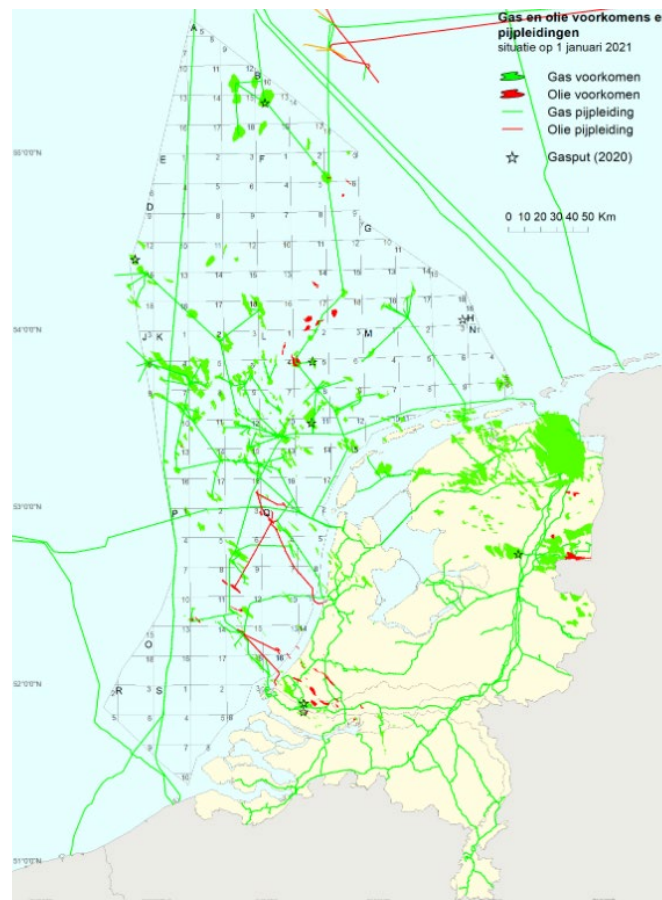
3. “Onafhankelijkheid van kolen en gas met behoud van leveringszekerheid”, Letter to Parliament, Ministry of Economic Affairs and Climate, 22 April 2022

4. In 2022, Shell’s official headquarters moved from The Hague to London and the company dropped the “Royal Dutch” in its name.

A Brief Dutch Gas History

In 1947, Shell and Exxon founded the joint venture *Nederlandse Aardolie Maatschappij* (NAM), initially with the aim to search for petroleum in the Netherlands. After some petroleum field discoveries of limited size, the Groningen gas field was discovered in 1959. It became soon clear that the size of this field, estimated at some 2800 bcm—around 70 times the current yearly demand in the Netherlands and at that time one of the largest gas fields in the world—would determine the future of Dutch energy policies.⁵ It implied the Netherlands would soon become a “gas country” with a gas infrastructure built around the Groningen field and later also around the much smaller gas fields discovered in the Dutch part of the North Sea (Figure 1).

Figure 1: Gas fields in the Netherlands in 2021



Source: EZK, 2020.

5. “Historie van aardgas en aardolie”, website, NAM, 2022, available at: www.nam.nl.

A few years after discovering the Groningen gas field, a pipeline structure was set up and supplied the whole country with natural gas. By the end of 1963, Groningen gas started being delivered to consumers and by 1968, all mainland municipalities had been connected to the gas grid.⁶ In addition, a governance structure was designed that would assure maximum profits for the Dutch state from the gas field, while still allowing the commercial investors Shell and Exxon to make profits.⁷

Shortly after, exports to other countries in Europe were initiated and contributed to the development of the European gas market. From an early stage, Dutch gas—the second largest domestic European source after Norwegian gas—secured a firm position in the consumption of European households and industry. Moreover, Dutch exports laid the foundation for the current international gas market and the transport and distribution systems in Europe.⁸

In 1973, the oil crisis induced a major change in Dutch energy and gas policies. Concerned about fossil fuel security of supply and determined to reduce their dependence on OPEC countries, the government decided that the Groningen field had to be kept in reserve as much as possible to maintain its buffer function for the Dutch and European gas market. Instead, the much smaller gas fields in the Dutch part of the North Sea had to be exploited as much as possible. Since then, this so-called “small fields policy” has formed a cornerstone of Dutch gas and energy policy.⁹ As a result of this policy, more than 175 small offshore gas fields were brought into production by NAM, of which the production peaked around the year 2000 despite a vivid search for new commercially exploitable offshore gas fields (Figure 2).¹⁰

While gas provided a major contribution to the development of the Dutch welfare state, its exploitation was not without problems. Increasing gas exports led to a very strong currency with unfavorable exchange rates with neighboring countries. This weakened the position of the Dutch export industry and led to increasing unemployment in the late 1970s. In addition, the gas rents were not set aside in a separate fund as in Norway, and thus they were easily used for unnecessary state expenses and consumption. Both developments together coined the term “Dutch disease”, often used in economic literature to refer to the dangers of improper exploitation of domestic natural resources.¹¹

6. A. Correljé, C. van der Linde and T. Westerwoudt, “Natural Gas in the Netherlands - From Cooperation to Competition?”, 2003, available at: www.clingendaelenergy.com.

7. The financial structure set up provided an initial 50/50 share in profits between the state and investors, but after taxation some 70% of net profits fell to the Dutch state. Ministry of Economic Affairs, Nota inzake het aardgas, Kamerstukken 6767-1, Vergaderjaar 1961-1962AM, 1962; “Historie van aardgas en aardolie”, *op. cit.*

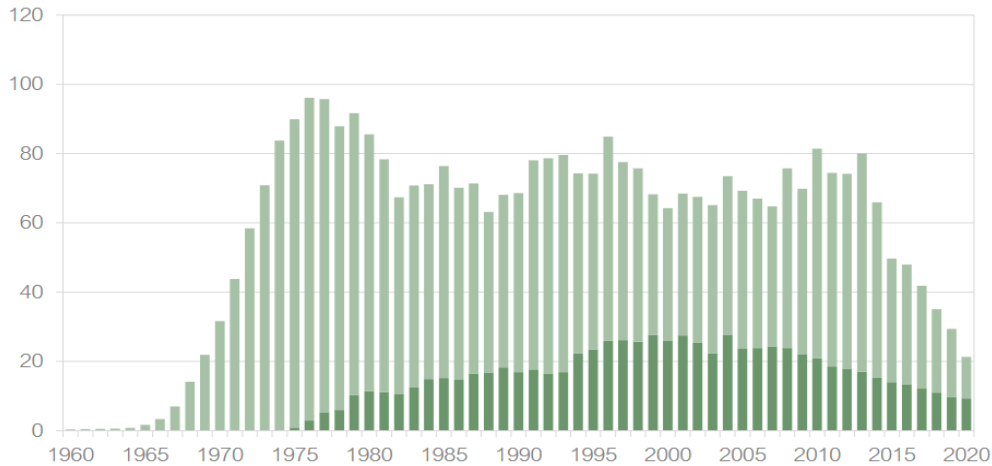
8. A. Correlié *et al.*, “Natural Gas in the Netherlands”, *op. cit.*

9. A. Correljé, “Hollands Welvaren – De geschiedenis van een Nederlandse bodemschat”, Teleac/NOT, 1998;

10. “Historie van aardgas en aardolie”, *op. cit.*

11. A. Correlié *et al.*, “Natural Gas in the Netherlands”, *op. cit.*

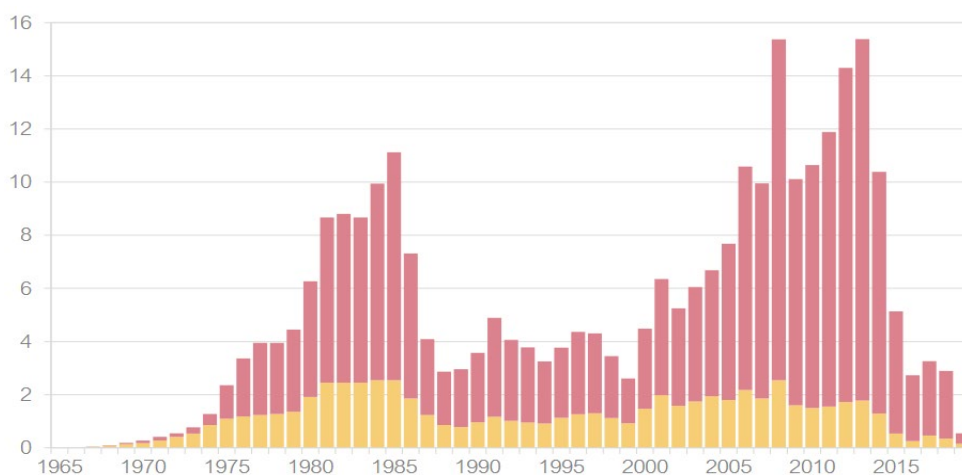
Figure 2: Onshore and offshore production of natural gas in the Netherlands, 1960-2020



Source: EZK, 2020.

After the recovery of the Dutch economy from its “disease” in the 1980s, gas resources nevertheless continued to contribute substantially to national income. Due to decreasing gas prices, gas incomes declined from 1985 on, when gas provided an all-time high of 18% of total state income. This trend was reversed in 2000 and a record profit of €15.3 billion was registered in 2013, equal to 9% of state income at that time.

Figure 3: State income from domestic natural gas exploitation (in billion euros)

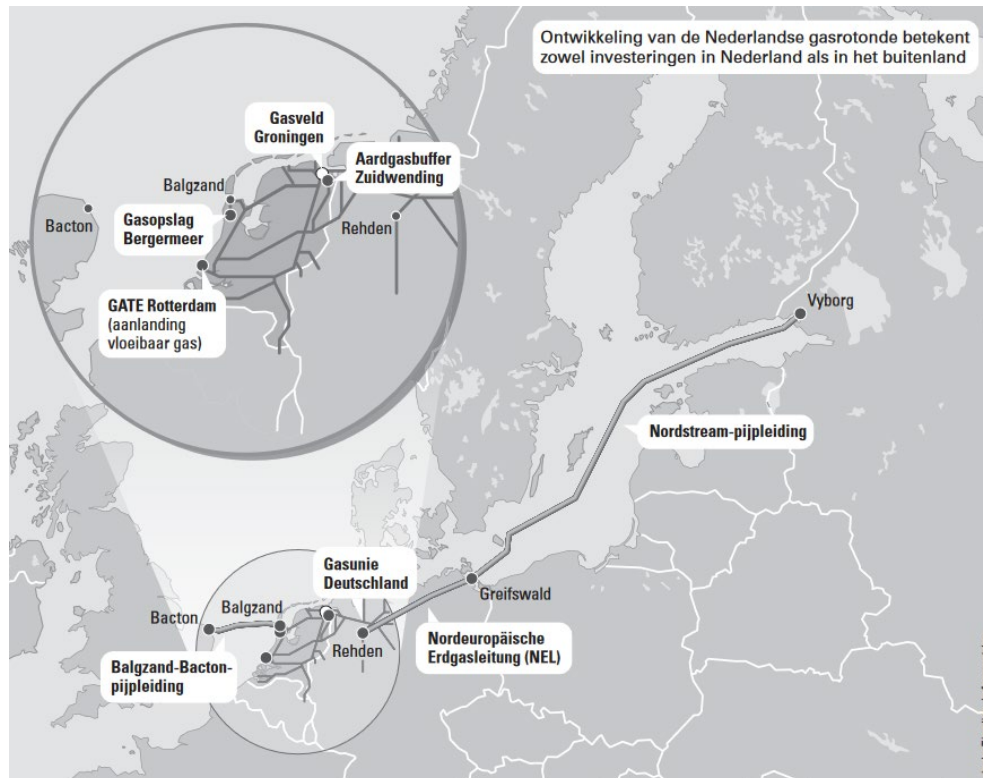


Source: EZK, 2020.

On these grounds, the government made optimistic plans for a continued dominant role of gas in the Netherlands and in the European gas market even after the foreseen depletion of the Groningen gas field around 2030. According to these plans, the Netherlands had to become a European “Gas Roundabout” through strategic investments in national and international pipeline capacity, underground gas storage and LNG capacity,

and the replacement of domestic Groningen gas by imported Russian and LNG gas to be stored and reexported via the Netherlands.¹² The resulting infrastructure investments led to a connection of the Netherlands to the United Kingdom and investments in North-German gas infrastructure as well as in the North-Stream 1 pipeline connecting Russia and Germany.

Figure 4: Dutch “Gas Roundabout” Projects



Source: AK, 2012.

Public investments resulting from the Gas Roundabout plans were not implemented without criticism. In 2012, they were subject to an investigation by the Dutch Court of Auditors, that concluded that “while €8.2 billion were invested as a result of the Gas Roundabout plans, not in all cases the investments were verifiably tested against the national public interest of a reliable, affordable and clean energy supply”.¹³ Nevertheless, the Dutch government decided to continue with its plans and in 2017 the responsible ministries stated that they had “properly responded to all recommendations made by the Court of Auditors”.¹⁴

However, these state investment plans did not consider the shifting public opinion around natural gas in the Netherlands, in particular regarding the exploitation of the Groningen gas field.

12. “Nederland als gasrotonde”, website, Aardgas in Nederland, 2022, available at: www.aardgas-in-nederland.nl;

13. *Ibid.*

14. *Ibid.*

The Shifting Public Opinion in the Netherlands

Small earthquakes in the Groningen area occurred since the 1980s. Their relationship with gas exploitation was first not considered evident and it was called into question by NAM and public authorities.¹⁵ However, further research initiated by the government led to a detailed report into the issue being released in 1993. The report concluded that a relationship between the gas exploitation and the earthquakes existed, yet “with an upper limit of 3.3 on the Richter scale for future earthquakes to be expected, and even in the worst case only a small chance of light damage in a limited area around the epicenter”.¹⁶

Many smaller earthquakes followed and on 16 August 2012, the conclusions of the report were ultimately proven incorrect: an earthquake in the Groningen village of Huizinge reached the unprecedented magnitude of 3.6 and caused substantial damage in a large area around the epicenter.¹⁷ The Huizinge earthquake, so far still the largest of its kind, showed to be a turning point in the public discussion around gas exploitation in Groningen. After this event, the dangers of earthquakes, fears and protests of citizens in the area could no longer be ignored or downplayed by public authorities and the businesses involved in gas production. They led to a lively national political and public debate, including many demonstrations and citizen protests in the province of Groningen.

After the Huizinge earthquake, more public action in the form of protests and demonstrations followed, together with a series of investigation reports. A National Safety Council report concluded in 2015 that “gas exploitation interests were put first in Groningen, while the legitimate safety interests of citizens were neglected”.¹⁸ Three years later—in 2018—, the Dutch government finally decided to phase out gas production from the Groningen field by the year 2030, close to the complete depletion of the field. However, the government continued to face major public

15. A. Corrélié *et al.*, “Natural Gas in the Netherlands”, *op. cit.*

16. “Eindrapport multidisciplinair onderzoek naar de relatie tussen gaswinning en aardbevingen in Noord-Nederland”, Commissie BOA, 1993, available at: <https://cdn.knmi.nl>.

17. “Een korte geschiedenis van gas”, website, Universiteit Utrecht, 2022, available at: <https://carboncultures.org>.

18. “Aardbevingsrisico’s in Groningen”, Onderzoeksraad voor de veiligheid, 2015, available at: www.onderzoeksraad.nl. The Safety Council is an independent public body that investigates accidents in the Netherlands that are of national importance and in which public bodies are involved.

pressure and only one year later—in 2019—the Minister of Economic Affairs announced that exploitation would stop already in 2022.¹⁹

Over the same period, a lack of progress in the implementation of renewable energy and climate measures in national policies became evident. Despite high ambitions formulated by the government, deployment rates of renewable energies were lagging substantially behind targets. For many years, the Netherlands even figured on an embarrassing pre-final and even final position in European Member State comparisons relating to the expansion of renewable energy.²⁰

This led the small NGO Urgenda, together with 886 Dutch citizens as co-plaintiffs, to sue the Dutch state for not meeting its climate targets. In a groundbreaking court case with a 2015 verdict that was finally confirmed by the Supreme Court in 2019, Urgenda was confirmed in its plea that the Dutch state had to take more actions to meet a goal of 25% greenhouse gas emission reduction in 2020 compared to 1990 levels²¹. More juridical claims by environmental NGOs followed, most notably a case of Milieudefensie against Shell and claims by “Mobilization for the Environment” about the lack of ambition in reducing nitrogen emissions caused by intensive agriculture in particular. Both organizations showed to be successful with their claims²². The government had to respond to the verdicts by formulating and implementing more ambitious climate and nitrogen policies. The new goals set also included a target to make the built environment in the Netherlands “natural gas free”. Furthermore, the Dutch government signed a declaration during the last COP26 climate conference, committing “not to invest in fossil fuel projects abroad anymore”.²³

The juridical claims can be seen as a signal of a shifting public opinion in the Netherlands in recent years, with an increasing divide in the political spectrum in Dutch society building up in recent years. Part of society seems upset with the perceived limited and failing environmental and climate action of the government. This has led to increasing participation of citizens in energy communities aiming to organize renewable energy supply themselves as well as to many kinds of “bottom-up” sustainability initiatives. It has also led to increased support for “green” political parties favoring ambitious climate and sustainability policies and to mainstreaming such targets in other parties’ programs.

19. “Een korte geschiedenis van gas”, *op. cit.*

20. P. Boot, “Is Nederland het slechtste jongetje van de klas?”, blog post, February 2020, available at: www.pbl.nl.

21. “Nederland moet uitstoot broeikasgassen verder beperken”, Rechtbank Den Haag, June 2015, available at: www.rechtspraak.nl.

22. The Shell case is now in its second reading, although the judge in first reading stated that this could not be an excuse for Shell not to act upon the sentence in first reading.

23. “Nederland stopt toch met financiering fossiele brandstofprojecten in het buitenland”, NOS, 8 November 2021, available at: <https://nos.nl>.

At the same time, another and increasingly large part of society is vehemently opposed to this transition. It takes a conservative attitude against societal change, reflected for instance in the growing support for populist parties and political views in the Netherlands. In 2022, public fears and anger about societal change for sustainability also translated into huge farmers' protests against the strict agricultural policies that were announced by the government as a response to the nitrogen verdict.²⁴

So far, however, the increasing divide in society about energy and sustainability transition policies has not yet led to effective political change in the Netherlands towards either side. Rather, the elections in 2021 resulted in unprecedented fragmentation, with more political parties represented in Parliament than ever before. But after very long coalition negotiations, the same four political parties as before took part and in the new government, which was again headed by Mark Rutte, leader of the liberal party.²⁵ He became Prime Minister for an unprecedented fourth time in the history of the Netherlands, with a record of 12 years in office.

24. "Boerenprotest Den Haag voorbij, 2200 trekkers terug naar huis", NOS, 1 October 2019, available at: <https://nos.nl>.

25. Next to the liberal party VVD also liberal democrats D66, Christian Democrats CDA and the more conservative smaller party ChristenUnie.

Dutch Climate and Energy Policies after Russia's invasion of Ukraine

On the 10th of January 2022, the new Dutch government took office, on the basis of a coalition agreement with ambitious climate and energy goals and measures. These included a 55 to 60% emission reduction target by 2030, a climate transition fund of €35 billion²⁶, a new incentive framework for Carbon Capture and Storage (CCS)²⁷ and a commitment to active involvement of citizens in the transition. The exploitation of the Groningen gas field was to be ended as soon as possible, no new gas exploitation in the Waddenzee to be allowed and subsidies for fossil fuels to be reduced “where possible and in cooperation with other countries in order not to endanger the investment climate in the Netherlands”. Further, the coalition agreement included plans to stimulate green hydrogen production as one of the alternatives for natural gas. But new domestic natural gas exploitation in the remaining Dutch part of the North Sea was also to be supported.²⁸

The announced energy plans of the new government also included a section on nuclear energy: a longer operation time of the current nuclear power plant in Borssele was envisaged, as well as the construction of two new nuclear power plants, for which a series of preparatory steps were to be taken. These include a revision of the current nuclear energy law, research on possibilities for the integration of nuclear energy in a future low-carbon energy system and exploration of new financing options for new nuclear energy.²⁹

26. In particular for industry and for green hydrogen, but also for building insulation and other measures stimulating transition in the built environment.

27. For more details on CCS projects in the Netherlands and the SDE++ mechanism, see (in French): S. Cornot-Gandolphe, “Un nouvel élan pour le captage, stockage et utilisation du carbone (CCUS) en Europe”, Études de l’Ifri, September 2021, available at: www.ifri.org.

28. “Het klimaatbeleid in het coalitieakkoord”, Klimaatakkoord, 15 December 2021, available at: www.klimaatakkoord.nl.

29. More information on this process is expected to be delivered to parliament in the Fall of 2022, and late 2023 a decision on possible locations and the bidding process for the new nuclear power plants is planned. “Brief over acties die zijn ingezet om uitvoering te geven aan het coalitieakkoord op het gebied van kernenergie”, Ministry of Economic Affairs and Climate, 1 July 2022, available at: www.rijksoverheid.nl.

Regarding hydrogen, the government published a “National Hydrogen Plan”, with a target to reach 500 megawatts of installed electrolysis capacity by 2025. The plan includes subsidies and obligatory minimum percentages for green hydrogen demand in industry and transport. Participation in the German H2Global program is also considered, as well as support for several H₂ infrastructure programs in Rotterdam harbor.³⁰

In the built environment, the previously announced plans to make the built environment fully “natural-gas free” were translated into concrete measures, including subsidizing hybrid heat pumps and a national housing isolation plan. Various neighborhoods throughout the Netherlands were selected as experimental zones for a variety of approaches in this direction, with a strong focus on citizen involvement and bottom-up participation. Furthermore, thirty newly formed Energy Regions worked out regional energy plans, each with ambitious renewable energy goals for their region. However, despite a large focus on participation here as well, experiences in terms of number of participants as well as satisfaction of participants with the process of participation seem mixed.

Shortly after the new plans were announced, the Dutch government and society were completely taken by surprise by Russia’s invasion of Ukraine on 24 February 2022. Suddenly, all energy transition plans came in a pressure cooker to consider the possibility of a complete disruption of Russian oil and gas supplies. In a quick-scan, the research organization TNO provided an overview of the possibilities for the short, medium and longer term, together with their possible drawbacks (Table 1).

30. “Quickscan Rotterdam Haven en Industrie: Fit for 55?”, CIEP, 2021, available at: www.clingendaelenergy.com.

Table 1: Options for reducing gas dependency from Russia

Short-term	Medium-term	Longer-term
Fuel switch to coal and biomass (2,6 bcm potential savings, but CO2 emissions rise)	Lasting behavioral change in households and businesses (including teleworking and lower household heating temperatures)	Maximizing offshore wind
Maximizing LNG-import capacity could replace 8-12 bcm gas, against high costs, high import dependency and CO2 emissions at production and transport	Additional energy efficiency at households (insulation, heat pumps, solar boilers)	Electrifying industry
Domestic production in (particularly) Groningen could replace 0-6 bcm at high societal costs	Energy savings in industry	Heat transition of the built environment
Temporary reduction of demand by behavioral changes and higher tariffs. Potential is 2-3 bcm but could give problems for part of households (energy poverty) and business.		Development of green hydrogen and green gas

Source: "Nederland onafhankelijk van Russisch gas, opties voor de korte en lange termijn", TNO, 2022, available at: www.tno.nl.

On 22 April 2022, the Dutch government communicated to the parliament its plans to terminate the imports of 6 bcm of Russian gas per year (15% of total end use) by the end of 2022 and to save in total 9 bcm of gas per year by 2025.³¹ They more or less followed the technical menu provided by TNO, with as a notable exception being the reassurance by government that the Groningen field would only be used in an extreme case of emergency. An example given by the Secretary of State of such an emergency is for instance "if hospitals can no longer be safely heated".³²

Short-term measures announced to be completed by the end of 2022 include a wide range of options, such as a campaign in national news media to save energy, stricter energy savings obligations and more subsidies for business decarbonization investments, an expansion of the LNG import capacity in Rotterdam by 5-8 bcm/year (in addition to the existing

31. "Onafhankelijkheid van kolen en gas met behoud van leveringszekerheid", Letter to Parliament, Ministry of Economic Affairs and Climate, 22 April 2022, available at: <https://open.overheid.nl>.

32. "Productielocaties vanaf oktober op waakvlam, gaswinning in Groningen kan niet veilig", Omroep Groningen Vijlbrief, 20 June 2022, available at: www.oogtv.nl.

12 bcm/year capacity), two new floating LNG terminal in Eemshaven (4 bcm/year each) operational as of September 2022, an obligation to fill gas storage capacity in the Netherlands to a minimum level of 70%, and a repeal of restrictions on the use of coal power plants (which were previously only allowed to run at 35% of their capacity).³³

For the medium and longer term, a doubling of the offshore wind energy target towards 21 gigawatts in 2030, expansion of hydrogen, green gas and electrification plans and extra gas production from the small gas fields in the North Sea were planned. Furthermore, plans for energy savings in the built environment were intensified, including rolling out further insulation programs and stimulation of hybrid heat pumps and development of neighborhood district heating networks³⁴ as the most promising alternatives to gas for household heating.

Also, on 20 June 2022, the Dutch government announced a “first level of a gas crisis”.³⁵ As a result, gas companies became obliged to provide monitoring information on a daily basis, all capacity restrictions of coal power plants were removed—with measures to compensate for the increase in CO₂ emissions that still need to be worked out—and an energy savings plan for end-users was planned to be rolled out, including a large campaign for the public to save energy and a tender for energy savings in the industrial sector.

The Netherlands also welcomed the European REPowerEU plan as fitting with the Dutch measures taken, including the higher energy efficiency targets. However, some reserves were announced about EU plans to intervene in energy wholesale market prices, the installation of new intervention funds to assure maximum prices.³⁶ It was stressed that joint purchase of energy had to occur on a voluntary basis and should not lead to market distortions. The Dutch government also announced that it would further investigate the possible consequences of the planned measures for the Netherlands before full support would be given.³⁷ Energy efficiency details that were met with reserves by the Dutch government included for instance higher energy efficiency targets for existing buildings and a faster implementation of the emission-free standard for new buildings. Also, higher hydrogen targets would be supported only under the condition that these would not lead to a delay in finalizing the Fit-for-55 negotiations.

33. Also, the Onyx powerplant on Maasvlakte that was expected to close after a voluntary deal with government announced to stay open longer “for the moment”.

34. On industrial waste heat, biomass and other sources to be decided.

35. “Minder gas uit Rusland”, Rijksoverheid, August 2022, available at: www.rijksoverheid.nl.

36. “Brief over gasleveringszekerheid de komende winter en verder”, Ministry of Economic Affairs and Climate, 14 March 2022, available at: <https://open.overheid.nl>.

37. “Appreciatie REPowerEU”, Ministry of Economic Affairs and Climate, 17 June 2022, available at: www.rijksoverheid.nl.

Reducing gas dependency from Russia has also led the Dutch government to accelerate plans for new gas exploitation in the North Sea. Together with Germany, the Netherlands issued a permit for the exploitation of a new gas field in the North Sea on the border of the two countries.³⁸ In addition, permit procedures for new gas exploitation are planned to be further accelerated and simplified, with hopes for an additional production of 2-4 bcm/year over 10 years according to government sources.³⁹

Meanwhile, the Dutch government also reacted to the rising energy prices by introducing measures for all households and additional measures for low-income households. Measures for all households included a reduction of energy taxation on electricity, a reduction of VAT on electricity, gas and district heating tariffs, and an increase of the standard reimbursement of energy taxation. In total, an average Dutch household would save some €545 on their energy bill in this way and low-income households would receive an additional €1,300 support to pay their energy bills.⁴⁰ Further on, measures to counter the staggering inflation rates are to be announced in the Fall of 2022, when the new governmental budget plans for 2023 will be announced.

38. “Nederland en Duitsland gaan gas winnen op Noordzee”, Rijksoverheid, 1 June 2022, available at: www.rijksoverheid.nl.

39. M. Del Bueno, “Dutch Gas Supply Strategy to Hinge on LNG, Domestic Production”, ICIS, 8 September 2022, available at: www.icis.com.

40. “Maatregelen om de hoge energieprijzen te compenseren”, Rijksoverheid, August 2022, available at: www.rijksoverheid.nl.

An Ending and a New Beginning

At a time when the Netherlands are simultaneously facing climate, energy and nitrogen crises, there are several lessons that can be drawn from the energy transition process and the nearing end of domestic gas.

Turning an inhibiting lead into an advantage for the transition

In the first place, the implications of the nearing end of the Dutch gas wealth need to be re-thought, not only in terms of material assets, but also in terms of mindsets. Natural gas has left the Dutch society with at least two major issues for its energy transition. One is the gas infrastructure for the built environment and industry, which are optimized for low-caloric Groningen gas as an abundantly available and affordable domestic energy source. Technically, this issue can be solved relatively easily, by mixing foreign natural gas that is high-caloric with the right amount of nitrogen to make it “pseudo-Groningen” gas. In addition, it is in principle possible to use the existing natural gas network also for hydrogen, although substantial costs must be born e.g., for the replacement of meters, additional safety measures and the replacement of end-user equipment.⁴¹

More complex is the question of the fossil, natural gas “mindset” and the large techno-economic political complex around gas that has been built up over several decades and that now needs to be changed. Without the earthquakes and the massive public protests that these caused, a premature end of the Groningen gas field before 2030 would most likely not have been envisaged by either the business community or the government. Without NGO-led court cases, a more dedicated implementation of measures to reach climate, renewable energy and other environmental goals would also have been unlikely.

Striving for gas independence from Russia has now been used as an additional argument to accelerate new offshore gas exploitation in the North Sea. And while Dutch gas is likely preferable to Russian gas from an environmental perspective and certainly from a security of supply and profit perspective, it is also clear that such new exploitation once more prolongs the fossil lock-in of the Netherlands. The signal sent to all those nations with untapped fossil reserves is that even for a rich nation such as the Netherlands, it turns out impossible to leave the promised wealth from fossils in the domestic ground.

41. “Toekomstbestendige Gasdistributienetten”, Netbeheer Nederland, 2018, available at: www.netbeheernederland.nl.

At the same time, there are several signals that the “social license to operate” for exploitation of these resources can no longer to be taken for granted as it was in the past. Next to the Groningen protests and renewable energy communities and initiatives all over the country, a recent open letter of over 400 Dutch scientists reacting to the decision on renewing efforts in offshore gas exploitation warned the government that “our addiction to fossil fuels will never stop in this way”.⁴²

Finding a solution to the societal divide

In the second place, the increasing split in Dutch society between pro- and anti-transition sentiments needs to be addressed. Far from being a purely technical process, the nearing end of Dutch gas and the Dutch energy transition in general are important factors in a major societal shift in the Netherlands. While one part of the population seems to be shifting towards a more radical left in favor of a faster transition, another large part appears to be moving towards the populist right and engaging in increasingly violent protests against exactly this same transition. The more moderate majority in the middle meanwhile remains relatively silent and is uncertain about the pace of action that would fit with their aspirations. It is currently represented by a far from stable government that builds on small majorities and promises to lead the way towards change, but at the same time resolves to some recipes of the past of which success in the future is far from certain.

Several of the measures announced by government are controversial in society. Next to the renewed investments in offshore fossil exploitation, the future of nuclear energy in the Netherlands is also uncertain. With a history of fierce anti-nuclear energy protests in the 1970s and 1980s, a public opinion that now seems to have taken a more positive stance towards nuclear in the light of its climate benefits might shift again towards the negative once the plans become more concrete and formal location and investment decisions for nuclear energy will have to be taken.

Furthermore, public opinion has still to be won in decisions to reshape the built environment with low-carbon solutions. While the regional energy plans worked out in 30 newly shaped “energy regions” burst with renewable energy ambitions, public participation in the elaboration of such plans showed limited, despite good intentions and the commitment to a bottom-up approach. Major hurdles for implementation here include limited availability of sites for wind and solar parks and public resistance against large interventions in the already scarce open space in the Netherlands. It is further unclear to what extent there is public support for the hybrid heat pumps and neighborhood district heating networks that are promoted by government as energy transition solutions.

42. “Open brief van ruim 400 wetenschappers tegen gasboringen Noordzee”, NOS, 15 June 2022, available at: <https://nos.nl>.

A better finetuning of public participation policies for major decisions such as a nuclear revival and the restructuring of the built environment seems therefore needed. Taking into account public concerns about change not only on an individual energy project level, but also on a wider political level and providing a convincing narrative that holds promises for all groups in society could potentially assure the public support for change that is needed for a major societal process such as the energy transition.

Evaluating the impacts of the Russian invasion

Finally, the impacts of the Russian invasion of Ukraine need to be closely monitored, thus preventing rushing into actions with long-term negative implications for the energy transition. On the short term, the planned actions seem to be proceeding well. For the coming winter, the filling of the gas storage capacity in the Netherlands is on its way and is closely monitored by the government. At this stage, the risk of major distortions in gas supply on the short term seems limited. Neither do there seem to be large concerns in Dutch population about security of energy supply for the coming months. In the absence of a “supply emergency” and despite sky-high gas prices, the Netherlands’ Ministry of Economic Affairs and Climate recently confirmed that increasing the output from Groningen is not considered due to the dangers of earthquakes, and even more because of the fierce opposition in Dutch population against this option.⁴³

Evaluating the impacts of this event on the middle and longer term, also the intensification of energy efficiency, hydrogen and renewables deployment efforts can be seen as clearly positive for the energy transition. Accelerating developments here, although associated with investment costs on the short term, is a no-regret option for the future. Less positive on the other hand is the removal of the restrictions on the operation of coal power plants in order to fill parts of the gaps left by Russian gas, although this can be seen as a temporary effect that will cease in a few years since the phase out of coal is not put into question.

Worrying however is the renewed interest in the exploitation of new gas fields domestically and abroad, as expressed by the Netherlands and other governments in Europe. Once more, the goal of leaving fossils in the ground for the sake of the climate seems to be sacrificed for the sake of security of supply. The velocity of the decisions made here has come at the cost of new and potentially dangerous lock-ins into fossil fuels in the

43. K. Abnett, “Dutch Govt will not Boost Groningen Gas Output Unless Supply Emergency”, Reuters, 8 September 2022, available at: www.reuters.com.

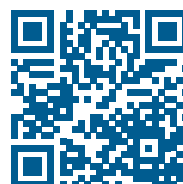
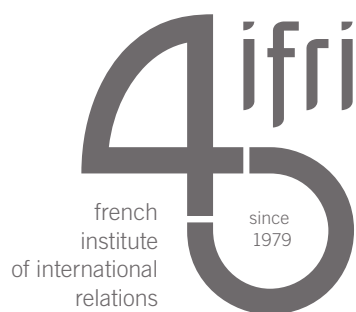
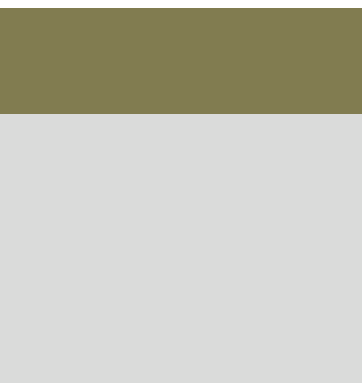
Netherlands as well as in many other countries where eyes probably start to blink with the prospect of quick fossil money ahead. With public interest in the Groningen gas field most likely preventing a further exploitation of this field in the future, it is here where a serious energy transition risk linked to the Russian invasion of Ukraine needs to be addressed.

Conclusion

Natural gas has been the central element in Dutch gas policies and in the public mindset for decades, but it will no longer be in the future. After many years of comfort provided by its large domestic gas resources, the energy safety belt of the Netherlands is now nearly ungirded. The country must therefore redefine its energy future based on competitive advantages to be found in the energy transition. Its gas pipeline networks, overall excellent transport infrastructure and its central position in North-West Europe with respect to the German *Hinterland* can be important elements that will play a decisive role here.

However, the mentality shift that is already underway still needs to be completed. It must be fully realized that the age of national “natural gas pride” is over and should be replaced by a new narrative based on newly found competitive edges in energy efficiency, hydrogen and renewables for which technical and social innovation go hand in hand.

As the first steps in this area seem hesitant and contradictory, the Dutch energy sector and society still need to further define its societal transition pathways, while also anticipating their geopolitical implications and drawing the implications from a Dutch and European perspective. Without such clarification exercise, increasing populist trends in upcoming elections might well lead to a stagnation or even reversal of the transition process. However, once having shaken off the negative aspects of its previously inhibiting lead in fossil fuels, the Netherlands may well be on its way towards a successful energy transition for the future.



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