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Ben Gales

A Dutch Revolution: Natural Gas in the Netherlands

The classical story of the gas revolution in the Netherlands is a simple one. In 1959, explorers unexpectedly struck huge quantities of natural gas in the north of the country. Policy-makers were flabbergasted. Still, the Shell and Esso corporations, which were partners in exploration, and the Ministry of Economic Affairs, seconded by the Dutch State Mines as an expert in energy matters, worked out the “Master Plan,” as it was soon labeled. That plan sketched what a gas society had to look like. Once agreed upon, the plan was implemented rigorously. A national network of pipelines was constructed and virtually all households were connected. The planned and swift adaptation of cooking ranges in kitchens to the new gas was one symbol of this top-down revolution. A second one consisted of debris: the piles of appliances removed from private homes. The US intervention in the “Master Plan” was the dramatic element in the story. Had it not been for Esso and its experience with natural gas in the United States, the Dutch would never have considered using natural gas for the comfort of its citizens. The Dutch were focused upon industry and, if not converted by US evangelists, would have given priority to industrial use of gas.

That story is not subtle, to say the least. The discussion about natural gas started immediately after World War II, though the topic was a very small part of the larger debate about the optimal institutional design of the gas industry. Should the supply of the fuel be organized like the electric industry or remain a local public utility? Frequently, suspicions arose that this debate slowed down exploration; that finding gas was not a priority for Shell, which had a monopoly but collaborated internationally with Esso. The preference for industrial use and the neglect of individual households are also themes that were addressed regularly from the 1940s onwards. Finally, the stress upon not knowing in this story is odd. Shell was a company operating worldwide and exploitation of natural gas deposits had been a rapidly increasing business in colonial Indonesia, Shell’s birth-place. Furthermore, policy makers and other Dutch citizens not employed by Shell were aware of what had happened in the United States and France.

The gas revolution was revolutionary due to arrested development within the Netherlands. To illustrate the domestic roots of revolutionary change, I will focus on gas use in

households. For most of the twentieth century, governments tried to guide the evolution of welfare. Dutch élites were particularly ambitious. Choices of households were managed: people should not enjoy maximal warmth at home, but socially expedient warmth. Change could be slowed down and could be arrested temporarily. In this model, shocks might be necessary to hold back change.

The traditional narrative about the history of energy in Dutch households runs approximately as follows: In 1900 the Netherlands was a kingdom of slums and blind alleys until suddenly a vanguard of reformers successfully changed the course of events. Better houses became the norm and life inside was more comfortable. This story is misleading, however. Misery, stench, and cold are good for making a book a prize winner some hundred years later, but today's myopia ignores to what extent a house with mainly cold rooms was a modern phenomenon.

Surveys of international organizations show that, by 1960, Dutch houses had many rooms. There were both more rooms and more occupants than anywhere else in Western Europe. One might consider this a positive feature. However, it was striking how rare showers or baths were, given the near universal provision of piped water. Heating that water was apparently a problem. Furthermore, the overall size of the dwellings was small despite the number of the rooms. Homes were smaller than they could have been, if we take into consideration that the Dutch were wealthy by international standards. The major factor in keeping size down was the "luxury" problem of heated space.

We can identify two phases of energy development before the natural gas revolution of 1959: a progressive nineteenth century, followed by stagnation in the twentieth century. Progress in space heating in the Netherlands was substantial before 1900 but came to a halt thereafter. Direct measurements of temperature inside the homes are scarce and measurements providing information about temperatures in all rooms are even scarcer. We have to rely on indirect indicators of progress: the chimneys of houses, the stoves inside the houses, or the number of openings for firesides and hearths in the rooms.

During the nineteenth century, the number of chimneys increased more rapidly than national income, but towards the end of the century the growth rate declined substantially below the earlier level. Tax-systems changed around 1900 and therefore complicate a comparison of the twentieth with the nineteenth century.

Household consumption of town gas, generated from burning coal, might help us fill that gap in the data. The household use of town gas increased by more than seven percent per capita each year between 1880 and 1910. Annual growth in town gas usage was only 0.5 percent between 1910 and 1950. There was substantial increase in consumption during the 1950s, but this only brought growth back to one percent annually. Growth flattens when industries mature and gasworks were an established industry, but something else is more important in the present context. Consumption of town gas is not a good indicator for heating. It could heat rooms, but town gas was not supposed to be used for that purpose. Up to the late 1950s, the norm was to burn gas for cooking or for boiling water. Authorities always worried that (poor) households might use kitchen ranges to heat their homes. Complex modeling revealed in 1950 that illicit use of town gas for heating was rare, even in undisciplined Amsterdam.

The size of dwellings is the best sign of a pattern of arrested progress during the twentieth century, though it is another indirect indicator that is difficult to interpret. Up to the First World War, the standard house became progressively roomier. The average size of houses probably started to decline by the end of World War I. That was certainly the case after 1945. The average size of a standard home began to increase once again just before 1960.

The evolution of house size suggests that housing conditions were Spartan. That was true for heating, which I consider an indicator of the quality of these conditions. People in the twentieth century followed the older norm that a decent house required only one heating point (or perhaps one-and-a-half, as cooking appliances complicate the issue). Access to chimneys suggests that there was not much positive change during the twentieth century. Of the houses built before 1914, 71 percent had two or more openings for stoves. This figure rose to 75 percent for those constructed during the interwar years, but declined to 51 percent after 1945. Over time fewer and fewer houses had an opening for heating the kitchen, a very sensitive issue and one of the most prominent desires of women. Furthermore, the infrastructure was often unsuitable. In many kitchens with an opening, there simply was not enough space to install a stove.

The diffusion of central heating was delayed in the Netherlands. Though an old technology, it first became an option, albeit a costly one, around World War I. Offices acquired central heating during the interwar years. Around 1960, experts stated that central

heating was “normal” in Belgium, yet only five percent of Dutch houses had central heating. The Belgian censuses give a more nuanced view, but there was undeniably a central-heating issue. This issue was very much indicative of the mind-set at the time. The introduction of “social central heating” in the Netherlands initially meant that just one element was installed in a flat, in accordance with the existing norm. It became known as “social” heating around World War II, when the architect, a social democrat, designed the radiator a bit larger than was required, so that other rooms could be heated indirectly. Journalists were convinced that central heating was forbidden until well after 1960. There never was such a law, but there were arrangements and expectations that obstructed the diffusion of central heating.

After 1945, the Dutch state and a group of employers and trade-union officials collaborated closely to manage economic life in detail, in the belief that a managed wage policy was imperative. The Dutch also lived with a “managed stove policy.” This was part of the social housing policy, which originated at the beginning of the century. Decent housing was a social right, but it had to be simple housing. The “managed stove policy,” because it was above all a set of norms, was not intimately linked to state intervention. Norms were still adhered to when the state withdrew. Austerity was also part of a wider ideology to which architects and financiers adhered, and frugal use of scarce energy was received wisdom. After 1945, regulation became intense. At all levels, choice was severely curtailed. At the same time, existing habits and views were strengthened by external phenomena, such as the widespread feeling in the 1950s that an energy crisis was imminent. This explains why coldness remained the norm for a long time and why cold space was not contentious for such a long time.

Before 1940, the differences between other countries in Europe and the Netherlands were not that great. A major gap developed after 1945, because heating was part of the housing policy and housing was an essential ingredient of the managed wage policy. Rents were kept low—and energy became relatively expensive—in order to stimulate low wages and boost industrialization. Experts and policy makers were aware that it was easier to cement norms, for example by normalizing houses and their infrastructure, than to influence behavior directly.

The controlled wage policy was gradually undermined from the bottom up. This, however, did not happen with the “managed stove policy.” Surveys of public opinion show

that people resented the cold kitchen; the lack of space was an issue too. However, houses mainly consisting of cold space were not perceived as a major nuisance. There was an interesting split between public conviction and private experience. The post-war housing shortage was the most sensitive issue in the public debate. Gradually it came to stand for a miserable quality of life in general. For the average citizen, however, the housing shortage became more of a political priority and less of a personal experience. Cold rooms were an acceptable personal experience. Bikes, stereos, and cars were more sought-after objects of consumption than warmth. Of course, there was some friction between the public at large and policy makers. Experts labeled particular lifestyles as good for the common family. The objects of their expert opinions had other views on how they wanted to live. Families in flats started to change their living rooms into parental bedrooms, to the dismay of planners, who believed that living rooms should not be repurposed. Those changes, though, were minor infringements and were nothing compared to the family-living-in-the-kitchen problem (also seen as the problem of the family not using the available living room). This issue became popular among housing experts during the early twentieth century. It remained hotly debated until 1960, though the problem was being gradually solved. Since the First World War, new kitchens were usually made small, to prevent families from using them as a social space. An unforeseen consequence of this policy was that housewives worked in a cold environment.

The “Master Plan” conceived after the landmark findings at Slochteren put households center stage. Initially, Dutch officials were predisposed to earmark natural gas for use in new chemical plants or in energy-intensive hothouses, where tomatoes and flowers for export would grow. Esso, on the other hand, stressed the importance of households. Their view prevailed, because US consumerism fed into a debate about the negative aspects of Dutch heating culture and of Dutch accommodation policies.

Housing professionals had been discussing and researching these issues for some time and their reputation was on the rise. Some specialists questioned the priorities that had emerged after the Second World War. They identified the willingness to adapt to conditions in homes as a major barrier to overdue change. Others stressed that newly built accommodation would have no future value if the prevalent designs did not change. The value of a heated toilet for public health emerged as one of the “hot” issues, which, unsurprisingly, was easily ridiculed by outsiders. In the context of this article, the technocratic attitude is more important than the plans that were concocted. The housing

professionals did not accept that there was a problem because sociological surveys showed an amazingly content population. The right course of action, then, was not to be determined by popular attitudes.

The discovery of gas in 1959 had revolutionary consequences. The share of natural gas in total energy consumption expanded more rapidly than expected. In the early 1960s, a 50 percent share was projected for 1975 but 70 percent was realized. The estimates for central heating were closer to the reality: a share in space heating of 35 percent in 1975 compared to estimates of 30 percent. The revolution started in the kitchen. Natural gas was the easiest substitute for town gas and, within the homes, town gas was primarily used for cooking and the provision of hot water. It is not surprising that the heating of space lagged, particularly given that it required extra investment. Installing central heating involved more than replacing an old hearth with a new type. Furthermore, most houses were old and were not amenable to new, “big” systems.

Nonetheless, there was a revolutionary change in the heating of homes—the truly revolutionary aspect of the Slochteren discovery. Central heating was integrated most rapidly into new social housing. The diffusion here was from more to less regulated sectors of the housing sector. The adoption rate in less-regulated subsidized housing outstripped the rate in non-subsidized new housing. The benefits of gas heating thus trickled upwards. This was the best indication that policy might work and that new conditions could be engineered.

Society changed even though most people did not see many reasons to change. And many distrusted the changes. The contrast between public and private frames of mind was an interesting aspect of public opinion. Polls unearthed a “class struggle sentiment” among ordinary people well before the riot of the building workers in Amsterdam of 1966, usually seen as the beginning of the turbulent 1960s. Many Dutch were convinced that De Gaulle and the French would profit more from Dutch gas than the common man in their own country. They were not wrong insofar as exports were an important part of the “Master Plan.” The nationality of the consumers was, however, of only secondary importance: Large consumers’ receiving the best deals fed the sentiment of distrust. The abundance of Dutch gas and expectations of a nuclear future stimulated exports and, more generally, encouraged the producers and the state to plan a lavish use of gas while it could still fetch a good price. The “Master Plan” had opted for a gas price linked to other energy carriers;

this made gas economic, but price discrimination actively invited consumers to use energy in large quantities. The resource needed to last only a short while.

The public uneasiness of the man in the street did not match his private sentiment. Most people were satisfied with the heating they had, whatever energy carrier was used and whatever the heating system was. People with coal hearths were not eager to change to gas in the middle of the gas revolution, as the price incentive for small users was not strong. The costs of the changes in the houses outweighed the energy savings. Furthermore, the price incentive would work only if behavior at home truly changed.

Private decisions were responsible for the switch to gas. The share of centrally heated homes in the total housing stock (thus in both old and new homes) only passed the 50 percent mark in 1980. Rising income and a shift towards durable consumption were the major factors. During the 1970s, consumption as a percentage of national income increased in most western European societies and in the Netherlands more than elsewhere. In the total housing stock, central heating trickled downwards. Richer households were the first to improve the quality of existing houses. The shift to natural gas was revolutionary but it took place mostly in state-controlled sectors like social housing. Revolutionary changes were, in fact, an aspect of control.

The changes were important, mainly because they made the Netherlands similar to other countries. The market share of central heating in the Netherlands in the mid-1970s had been reached in Switzerland and Denmark in the mid-1950s. Comparative data show that per capita household consumption of energy for heating went up considerably from the mid-1960s and continued to rise during the 1970s, in contrast to countries such as Germany. The position of the Netherlands changed from a relatively low to a relatively high level of household energy consumption. The insulation campaigns that emerged after the energy crises of the 1970s provide us with another perspective on Dutch revolutions. If the Gas Revolution was a shock that increased consumption, then insulation of houses was equally “revolutionary” in decreasing energy use from the late 1970s onwards. The drop was as remarkable as the previous increase. One should acknowledge, though, that the switch came a bit late.

What was revolutionary about the introduction of both natural gas and better insulation? These changes were oriented by government policy and, with respect to houses, sought

to design a lifestyle. The Dutch preference for compromise and collective innovation led to markedly uneven processes: Dutch revolutions. Inertia and slow change occasionally end in sudden transformation.

Further Reading

Gales, Ben. 2009. "Gemütlich am Ofen?" *Jahrbuch Zentrum für Niederlande Studien* 20: 91–112.

Gales, Ben, Ernst Homburg, and Geert Verbong. 2000. "Delfstoffen, energie en chemie." In *Tech-
niek in Nederland in de twintigste eeuw*, Vol. 2, edited by Adri Albert de la Bruhèze, Harry
Lintsen, Arie Rip, and Johan Schot, 17–267. Zutphen: Walburg Press.