RIGHT
RIGHT SKILLS FOR THE RIGHT FUTURE

# *RIGHT PILOT REPORT (draft)*

[RIF Gas2.0]

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# 1.0 Introduction

This pilot report describes the results, findings, outcomes, and learnings of the pilot project GAS 2.0 that has been carried out in the Province of Groningen as part of the Right Project to understand the Regional Innovation Ecosystem in the region. This pilot concerns  a multi-level, multi-actor, systematic, programmatic approach to energy RIE & human capital innovation that could be transferable (policy learning) for other regions and other (sub)themes in energy and blue sector. The RIF GAS 2.0 program combines 7 vocational colleges, 3 provinces, 4 municipalities and 47 SMEs. They cooperate in: attracting students; educational innovation: knowledge and skills; and building a community of practice.





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# 2.0 Regional/ Strategic Context

The Netherlands is Europe's second largest producer of natural gas after Russia and Norway. About half of the total natural gas production is for export. The national gas sector contributes 29.9 billion (about 15% of GDP) to the Dutch economy and provides employment for about 11,170 workers. Natural gas extraction takes place, for the most part, in the northern Netherlands. For that reason, the Northern Netherlands is the energy region of the Netherlands (CBS Statline).
The energy sector is one of the major sectors in Groningen in terms of production (CBS Stat line). Major companies in energy are Gasunie (gas transport and infrastructure) and GasTerra (gas trading). The reduction of natural gas production, as a result of the earthquakes and the global challenge of moving towards less consumption of fossil fuels, will lead to a shift from natural gas as a source of energy to the use of sustainable and renewable energy. As a result, people working in natural gas extraction will lose their jobs and people with different knowledge and skills will be needed to carry out this energy transition. To maintain its important position as an energy region, secondary vocational education institutions play a significant role by offering appropriate energy education to the students of today and in the future. In addition, they can offer retraining and upskilling of incumbent staff in connection with new knowledge and skills needed as a result of the energy transition.

For this purpose several initiatives have emerged. In 2003 the Energy Valley foundation was established by governments, businesses and knowledge institutes to expand the North-Netherlands energy economy and employment through sustainable innovations that match regional opportunities. The goal of the foundation was to support initiators in developing a project proposal, finding cooperation partners and gaining access to existing financing options. The Energy College came into existence approximately eight years ago. The Energy College is a cooperation between 7 existing institutions for vocational education, 50+ companies and the government in the north of the Netherlands in which forces are joined to create new forms of education, working on innovative projects and setting up hotspots together with innovative companies where students can learn all about themes such as hydrogen, geothermal, circular building, energy saving and solar and wind energy.

Subsequently, a strategic partnership between Energy College and Energy Valley Foundation was formed in 2015 with the following goal:

> *"Through the continued development of the Energy College, to work towards an adequate energy-related educational program at the MBO level to provide the region with innovative MBO energy professionals." It can be noted that the vision was to better shape the implementation of the energy transition to promote a cleaner and sustainable future by acting together."*

The foundations Energy Valley, Energy Academy Europe and Energy Delta Institute joined forces in 2018 to form of the New Energy Coalition (NEC). Since the beginning of 2020, Energy Valley Foundation has officially merged into NEC Foundation. NEC is a continuously growing network of knowledge institutions, companies, governments and NGOs working together to accelerate the energy transition for a sustainable future. At the end of June 2018, the seven schools of Energy College and New Energy Coalition signed a cooperation agreement to implement the RIF project Gas 2.0 for at least four years until August 2022. The main goal of Gas 2.0 is to develop energy education for secondary vocational education students and incumbent staff through public-private cooperation and to share this knowledge widely to promote the energy transition.



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The pilot concerns a multi-level, multi-actor, systematic, programmatic approach to energy regional innovation in energy transition & related human capital innovation that could be transferable (policy learning) for other regions and other (sub)themes in energy and blue (and other) sectors. This is particularly relevant, as the RIGHT trans-regional report concludes (van Lieshout & Manickam, 2019: 47):

> *"Improving the regional infrastructure for lifelong learning (section 4 and 7) is a key joint challenge. The firms themselves are and have to be a key part of that infrastructure: most learning takes place at the workplace, and - as the cost would otherwise become prohibitive – will have to continue to do so. But schools and living labs can and will have to support and supplement this."*

This pilot offered us the opportunity to study such a systematic programmatic approach in one our sectors and one of our regions to analyse and further refine (or revise) our findings and help us arrive at more specific policy advice in WP5 next year.

# 3.0 About the Pilot

The RIF Gas 2.0 project started in September 2018 and will run for four years until September 2022.

## 3.1 DESCRIPTION

At the end of June 2018, the seven schools of Energy College and New Energy Coalition signed a cooperation agreement to implement the RIF project Gas 2.0 for at least four years until August 2022.

Gas 2.0 is a public-private partnership for future-proof vocational education for the Northern Netherlands energy sector, sponsored by the Dutch Regional Innovation Fund (RIF). The RIF GAS 2.0 program combines:

- seven vocational colleges;
- three provinces;
- four municipalities;
- 47 SMEs.

Gas 2.0 creates connectedness through public-private partnerships and contributes to the ambitions of sustainable energy generation in the North. Energy College wants to establish itself as the place where MBO energy education is developed, shared and disseminated, so that students and professionals can increase their knowledge and skills online and offline. The main goal of Gas 2.0 is to develop energy education for MBO students and incumbent staff through public-private cooperation and to share this knowledge widely to promote the energy transition.

It consists of three pillars:

- recruitment of students and side-entrants (for lifelong learning);
- educational innovation: knowledge and skills;
- community of practice: active community.

The five goals are:

1. retain intake inflow from students;
2. increase student's knowledge and skills about the energy transition;
3. increase knowledge and skills of teachers and practical trainers about the energy transition;
4. increase knowledge and skills within companies about the energy transition;
5. realizing an active business community.

Thematically, it focuses on five themes:

- hydrogen;
- energy saving & sustainability;
- geothermal energy;
- biogas / green gas;
- power to gas.

### 3.2 METHODOLOGY

Within the RIGHT project, we chose this particular RIF gas 2.0 program as a pilot to learn about the potential and pitfalls of a multi-level, multi-actor, systematic, programmatic approach to energy regional innovation in energy transition & related human capital innovation that could be transferable (policy learning) for other regions and other (sub)themes in energy and blue (and other) sectors. We established and kept regular contact with its program manager (and her successors) from the summer of 2019 until now. We had planned to execute surveys under participating firms, teachers and students in the spring of 2020 and repeat them in 2021.

Unfortunately, Covid 19 and the resulting lockdown intervened. For us as researchers, in accordance with the RIF Gas 2.0, program leader, we first postponed and ended up not sending out those surveys to workers and students. We did execute a teacher survey under the participating educational institutes in the fall of 2020 This information was used as input for the writing of this report, alongside the continued oral information from the repeated interaction with the program leader (which also included some master student research projects) and desk research (including a midterm review on the program from the summer of 2020.). This fall, we additionally interviewed 6 persons from the various stakeholders involved.

Even more importantly, Covid19 also seriously hindered the execution (see sections 3.4 and 3.5 for details) of the RIF gas 2.0 program itself according to plan, As a result, the participation of individual firms in it did not evolve as planned and hoped. Surveying firms not yet actively participating in the Gas 2.0 program (much less the RIGHT program from the survey stems) would counteract its intention. So we ended up putting out the survey just once, in the fall of 2022, to a limited number of companies that have actively participated in the RIF Gas 2.0 program. Input from companies that have not yet participated as hoped and planned is represented by one of the stakeholders who were interviewed.

### 3.3 STAKEHOLDERS

**The RIF program Gas 2.0** is a regional multi-level multi-stakeholder program (see consortium and program details in the previous section). Gas 2.0 is a public-private partnership for future-proof vocational education for the Northern Netherlands energy sector, sponsored by the Dutch Regional Innovation Fund (RIF). The RIF GAS 2.0 program combines:

- seven vocational colleges;
- three provinces;
- four municipalities;
- 47 SMEs.

Program leader Mrs. Anja Hulshof used to be our primary 'customer' on behalf of the program. Since she has another job, this has been taken over by Mr. Hielke Hekman, head of labour market at the New Energy Coalition. He was and is the manager of the program leader.

From the RIGH program, **Hanze University of Applied Sciences** (dr. Harm van Lieshout and drs. Jeltje Talen) and **Province of Groningen** (Mr. Bas Fokkens) carried out the applied research on this program as a RIGHT pilot. A number of Hanze students from the Master Interdisciplinary Business Professional worked with them and Mrs. Hulshoff for some of their student assignments. In part due to Covid 19, their work did not result in the aspired empirical material, and will not be used here.

### 3.4 RESULTS/OUTPUTS

The RIF Gas 2.0 program is up and running since 2018, and funded through 2022. As described five goals were formulated:

1. retain intake inflow from students:
2. increase student's knowledge and skills about the energy transition:
3. increase knowledge and skills of teachers and practical trainers about the energy transition;
4. increase knowledge and skills within companies about the energy transition;
5. realizing an active business community.

The main conclusion of the midterm review in 20202 was that the Gas 2.0 project had made moderate progress so far. In both the midterm review and some interviews, it was mentioned that the goal regarding retention of the student inflow was met. In fact, in 2018 and 2019[1], inflow was even higher than targeted. The other goals proved less easy to achieve or measure. In particular, the cooperation with the companies could be improved. As already mentioned, this was partly the result of Covid19 (see also section 3.5). In the report for the midterm review was stated that a different approach would be desirable in order to obtain the goals. Until now, all the themes were managed together, which proved too complex to implement, resulting in a lack of focus and clarity, and this had a restraining effect on progress.

It was mentioned in the interviews that there were ancillary benefits and that these ancillary benefits may be at least as important as the output linked to the five goals described above. It contributed to the awareness and discussion of the importance of setting a regional agenda with respect to the energy transition and the need of appointing a party to take the lead in this. In order to be known as the Energy Transition Region or Hydrogen Delta, it is necessary to actively and daringly give substance to that ambition. In both the midterm review as in the interviews the Gas 2.0 project is mentioned as a good opportunity.

This view resulted in the advice to (jointly) appoint more *practors*[2] in secondary vocational education in order to strengthen the focus on energy transition within secondary vocational education institutions and to bridge the gaps between the educational institutions, the business community and other stakeholders. The report for the mid-term review recommended setting up complementary *practorates*. One of the educational establishments already has a *practorate* hydrogen and mobility. In addition to this, a *practorate* hydrogen in industry or a *practorate* hydrogen in the built-up environment could be considered. It was also mentioned in an interview that, when making this choice, the regional strengths and/or knowledge already present in the region should be taken into account. The interviews revealed also that some educational institutions have to get used to the idea of choosing complementary *practorates*. They fear competition or would like to have a own topic. While other stakeholders believe that this is the way to create mass.

One indication of results as well as chances for more progress stems from the teacher survey. It showed that teachers feel most competent on the subject of energy saving. On a scale of 1 to 10, teachers rate their level of knowledge and competence on this subject with an average of 6.53. This is followed by

[1] We do not have the results of 2020 yet.

[2] A practor is a figurehead, inspirer and/or driving force of a practorate. A practor is responsible for the development, application and dissemination of knowledge, both internally and externally. Practice-based research and the professionalization of teachers are also important tasks. A practor in secondary vocational education is what a lector (also called professor of applied sciences) is in higher vocational education and a professor in scientific education.

solar energy and wind energy with a score of 5.87 and 5.18 respectively. When asked on which topic the teachers would like to gain more knowledge, solar energy scored the highest with 3.13 on a scale of 1-4. Energy saving scored 3.05. Like solar energy, hydrogen scored 3.13, while biogas/green gas scored 2.35. When asked which topics should receive more attention in the curriculum, the topic of energy saving scored highest (score 3.02 on a scale of 1-4). The themes of hydrogen, solar energy and wind energy scored the highest with a score of 2.83. The themes of biogas/green gas, power to gas and geothermal energy received the lowest scores with 2, 2.09 and 2.16 respectively.

### 3.5 DISCUSSION OF FINDINGS

- **Cultural differences** between companies and educational institutes. Companies often have short-term needs, while educational institutions work with a long-term planning. While a program such as Gas 2.0 is intend and has the potential to help improve these relations, it by definition runs into them as relevant challenges to deal with, before such improvement can be achieved.
- **Covid19 pandemic**: The Covid19 pandemic and its impact was not foreseen by anyone. Firms had to struggle to maintain their production or service. The educational institutions were especially busy with providing online education as a result of which there was no time to strengthen that cooperation with other educational institutions and the business community. Hence, the potential of such a program to bridge cultural differences has mostly (in the sense of the scale and scope) not yet been realized.
- **Inexperience** and **complexity of the project**: Institutions for secondary vocational education have limited experience with this kind of projects. This inexperience in combination with the complexity of bringing 7 institutions for secondary vocational education together and creating support and then also trying to set up an effective working organization was not easy. At universities of applied science there is already more experience. These institutions also have professors of applied science who are occupied with bridging gaps between their institution, the business community and other stakeholders. Hence, the joint advice of instutionalizing more *practorates* in upper secondary vocational eduction, to play a similar role in better connected th business and education communities, helping educational culture change towards more innovation and cooperate in applied research and innovation with professors of (applied) sciens in higher education
- **Companies in different stages**: Everyone saw the importance of education and training, but perhaps the need was less acute for some companies because they are in a different stage than other companies and as a result of that less active in constituting cooperation with educational institutions (and other companies). This is reflected in the teacher survey results: energy saving is (potentially) relevant for each company (and thus all students in the field of energy) since years, while a transition towards hydrogen will only start to effect many companies (and students) in the future.

### 3.6 CASE STUDIES/EXAMPLES/STORIES

An example of a nice and concrete yield of the RIF Gas 2.0 project is the project with the tiny houses and hydrogen as energy carrier (https://dvhn.nl/drenthe/Waterstof-als-energiedrager-in-woning-tiny-house-toont-de-mogelijkheid-27038533.html). This project received publicity, however there was not explicitly mentioned that it concerned a RIF Gas 2.0 yield.

# 4.0 Conclusions

## 4.1 CHALLENGES

- Cultural difference(s) between education and business
- This specific form of cooperation is relatively new for secondary vocational education institutions (inexperience)
- Teachers have a limited number of hours to fulfil their tasks within the project and also have insufficient knowledge of the project and the objectives being pursued.
- Complexity as a result of a large number of involved parties. The equal role of multiple schools makes for a more complicated governance and implementation.
- As a result of Covid19, firms had to improvise to maintain production/service, and teachers had to switch to fully online teaching. As a result, there was no time to focus on (optimizing) cooperation with other educational institutions and/or the business community.

## 4.2 OPPORTUNITIES

- Despite the Covid 19- hampered roll out of the RIF Gas 2.0 program , the involved parties see the potential of and the need for this kind of cooperation in order to tackle the challenges with regard to the energy transition. They will take the lessons learned not just into the final year of this particular 40year program, but also into new similar multi-stakeholder human capital innovation for energy transition in general (and hydrogen in particular).
- By appointing *practors* institutions for secondary vocational education will be better able to build bridges between the educational institution and the professional field.

## 4.3 RECOMMENDATIONS & NEXT STEPS

- Regional agenda setting with regard to the energy transition and implementing this in joint investments into broad coalitions (NEC), specific institutes (i.e. Energy College and Energy Academy Europe), programs (i.e. RIF Gas 2.0 and Interreg RIGHT) and chairs can yield relevant results.
- In particular, institutionalizing the 'bridging' role with particular (groups of) professionals such as *lectorates* and professors of applied science in professional higher education, and more recently (joint) appointment of *practorates* and *practors* in secondary vocational education is helpful to embed such innovation strategies and help their implementation. For the latter, more and cooperating *practorates* and *practors* can help build bridges between the (own) educational institution and business and other parties with whom it is cooperating.
- Align with regional strengths. This is a double-edged sword. Without institutes such as Energy College and programs such as RIF, RAAK and Interreg programs, the North Netherlands might not have achieved early results in becoming a first-mover in the field of hydrogen. The reverse is as true: thanks to an early overall regional strategy and coalition formation for Energy Transition two decades ago, such specific institutes and programs might not have come into existence (and

certainly not to this extent) and the region would not have been in a position to seriously put forward such a grand plan as 'hydrogen valley'.

# 5.0 Outputs for new strategy and policy for Skills education and SME innovation

- Even with the Covid-19 related tougher sledding for this particular Gas 2.0 program, both that and the broader and longer history of multi-stakeholder innovation programs and institutes in the North-Netherlands in general (and more specifically the province of Groningen) serves as a worthwhile example for other regions (and sectors). Joint regional agenda setting with regard to the energy transition (or another field) and effective institutionalization in joint long-term investments in institutes, programs and chairs for applied research can yield larger results.
- While such multi-stakeholder agenda setting and investment can yield results, they will require time and (joint) learning – for each actor individually, as well as in their joint general cooperation, as in each specific cooperation setting. While, for instance, Universities of Applied Science in this region have 20 years of experience with broadening their role to supporting economic and related labour market innovation, they are still in the process of this transition. And the lessons they already learned, cannot be used to skip steps in a similar change for upper secondary vocational education and training institutes.
- An obvious caveat tot the former is that such agenda setting has to be based in existing regional strengths. A lack thereof would turn plans into pipedreams.

# 6.0 Acknowledgements

Many thanks to all stakeholders who were willing to share their experiences related to the RIF Gas 2.0 project.

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# 7.0 Annex

Translation of findings teachers survey (will be added)





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