

Name of the student:	Douwe Roest
Title of the thesis:	Natural Gas Lock-in: Does Hydrogen Pose a Risk to a Natural Gas Phase-out in the Netherlands?
Reviewer:	Dennie Oude Nijhuis

### 1. KNOWLEDGE AND CONNECTION TO THE FIELD

(relevance of the research question, research objective, literature review):

The literature review is comprehensive and is presented in a systematic way using a range of studies from different disciplines. The thesis convincingly argues that there is a broad literature on energy transitions, but that this literature has not systematically investigated the diverse forces of NG lock-in mechanisms, which means that there is a clear gap in the literature that is systematically addressed. The research objectives and research questions are laid out in a comprehensive and systematic manner, although I am not sure as to how successful it is in giving direction to the paper. The thesis makes it clear that it builds on the work on regime resistance by Geels, and applies this to a new sector/industry (NG) and does so based on a particular case, the Netherlands, which is well-suited for this purpose. The literature review contains a large section on the political and organizational technicalities of hydrogen use, which I found very useful as a non-expert, and I felt that this section succeeded in not veering into too many technicalities. This part of the thesis was very successful.

### 2. ANALYSIS

(methodology, argument, theoretical backing, appropriate work with sources):

The research design is explorative in nature, which makes sense. The choice to focus on the Netherlands (and NG) in general is persuasive and also since it can build on existing research by Geels, the research design is quite solid. The choice to look at potential lock-in mechanisms from three perspectives (techno-economic, political, and socio-technical) also works well. I was less convinced by the section that outlines the use of sources, which include a large selection of grey literature and 14 interviews. It was not completely clear to me on what criteria these 14 interviews were selected and how they were structured and the findings applied to the analysis. It was also unclear to me what the benefits of thematic coding was for the interviews and how these codes were used in delivering results. This section is nevertheless quite solid.

### 3. CONCLUSIONS

(persuasiveness, link between data and conclusions, achievement of research objectives):

The conclusions are developed in terms of the contributions of the research paper and the results/findings are presented in a persuasive and systematic manner. The thesis identifies a large number of lock-in effects and these are explained in a convincing manner. The results sections is also well-structured and it helps that this section continues to differentiation between the three perspectives outlined in the previous section.

### 4. FORMAL ASPECTS AND LANGUAGE

(appropriate language, adherence to academic standards, citation style, layout):

The thesis language is excellent and the structure of the paper is solid. The references are extensive and presented in the right manner.

## 5. SUMMARY ASSESSMENT

(strong and weak point of the dissertation, other issues)

This is an excellent thesis.

<b>Grade (A-F):</b>	A
Date:	Signature:
September 6, 2023	

classification scheme

Percentile	Prague		Krakow		Leiden		Barcelona	
	Grade Range	%	Grade	%	Grade Range	%	Grade Range	%
A (91-100)	91-100 %	8,5%	5	6,7%	8,5-10	5,3%	9-10	5,5 %
B (81-90)	81-90 %	16,3%	4,5	11,7%	7,5-8,4	16,4%	8-8,9	11,0 %
C (71-80)	71-80 %	16,3%	4	20%	6,5-7,4	36,2%	7-7,9	18,4 %
D (61-70)	61-70 %	24%	3,5	28,3%			6-6,9	35,2 %
E (51-60)	51-60 %	34,9%	3	33,4 %	6-6,4	42,1 %	5-5,9	30,1 %

### Assessment criteria:

Excellent (A): 'Outstanding performance with only minor errors';

Very good (B): 'Above the average standard but with some errors';

Good (C): 'Generally sound work but with a number of notable errors';

Satisfactory (D): 'Fair but with significant shortcomings';

Sufficient (E): 'Performance meets the minimum criteria';

Fail: 'Some/considerable more work required before the credit can be awarded'.