

TABLE OF CONTENTS

THESIS DEFENSE VALIDITY STATEMENT	i
STATEMENT OF ORIGINALITY	ii
PREFACE	iii
TABLE OF CONTENTS	iv
ABSTRACT	vii
ABSTRAK	viii
LIST OF TABLES	ix
LIST OF FIGURES	x
CHAPTER I INTRODUCTION	1
1.1 Research Background	1
1.2 Research Problem	2
1.3 Research Scope	4
1.4 Research Objective	4
1.5 Research Advantages	5
CHAPTER II LITERATURE REVIEW	6
2.1 Topic Modeling and Latent Dirichlet Allocation (LDA)	6
2.2 Applications of LDA in Energy Field	7
2.3 Applications of LDA in News	8
2.4 Methodological Variations in LDA Studies	8
2.4.1 Preprocessing approaches	8
2.4.2 Hyperparameter choices	9
2.4.3 Evaluation metrics	10
2.5 Identified Gaps and Research Contribution	10
CHAPTER III METHODOLOGY	14
3.1 Research Framework	14
3.2 Data Collection	15
3.2.1 Manual Filtering and Inclusion Criteria	17
3.2.2 Data Quality Assurance	18
3.3 Data Preprocessing	19

3.3.1	Data Cleaning.....	20
3.3.2	N-Gram Modeling.....	20
3.3.3	TF-IDF Filtering	21
3.4	Data Representation	22
3.5	Topic Modeling with LDA.....	23
3.6	Hyperparameter Tuning	26
3.7.1	Coherence Score.....	28
3.7.2	Perplexity	29
3.7.3	Jaccard Similarity.....	30
3.7.4	Word Intrusion Analysis.....	31
3.9	Experiment Scenarios	32
CHAPTER IV IMPLEMENTATION		34
4.1	Environment Setup.....	34
4.2	Implementation of Experiment Scenarios.....	34
4.3	Implementation of Noise Filtering.....	35
4.4	Implementation of Data Preprocessing.....	36
4.4.1	Data Cleaning.....	36
4.4.2	Lemmatization.....	37
4.4.3	N-Gram Modeling.....	38
4.4.4	Implementation of TF-IDF.....	40
4.5	Implementation of LDA Topic Modeling	41
4.6	Implementation of Performance Metric	43
4.6.1	Topic Diversity.....	43
4.6.2	Word Intrusion Analysis.....	44
CHAPTER V RESULTS AND DISCUSSION.....		46
5.1	Model Selection and Configuration Analysis	46
5.1.1	Impact of Preprocessing Pipeline.....	47
5.1.2	Impact of Alpha Configuration	47
5.2	Topic Interpretation.....	48
5.3	Discussion	53
5.3.1	Impact of Preprocessing and Hyperparameter Tuning.....	53

5.3.2	Potrayal of Indonesia's Energy Transition in English-Language News.....	55
5.3.3	Implications.....	57
CHAPTER VI CONCLUSION.....		59
6.1	Conclusion	59
6.2	Limitations and Future Work	60
REFERENCES.....		61