

TABLE OF CONTENTS

1	Research objective and methodology	5
2	Introduction	7
3	Process intensification and its drivers in the O&G	8
3.1	Pi fundamental concepts	8
3.2	PI implementation drivers in the O&G.....	9
3.3	Rated energy consumption as a key driver of PI implementation	11
4	Literature review and state-of-the-art of PI in O&G and gas processing.....	12
5	The natural gas dehydration process	13
5.1	Water content prediction	14
5.2	Pipeline and process specification	14
5.3	Dehydration methods.....	14
6	Modeling approach.....	17
7	Case Study	18
7.1	Process overview: Natural gas dehydration TEG unit.....	18
7.2	Current state simulation results	22
7.3	Intensified solution simulation and results	23
7.3.1	Intensification of the core unit (TEG unit)	23
7.3.2	TEG unit upstream block intensification (Pre-cooling)	27
7.3.3	TEG unit downstream block intensification (Mixing point)	28
8	Conclusions	30
	Nomenclature	31
	References	32