



**Implementing Directive 2009/125/EC of the European
Parliament and of the Council with regard to Ecodesign
requirements for Power, distribution and small
transformers**



ISR-University of Coimbra

12 October 2012

**Aníbal T. De Almeida
Fernando Martins
Bruno Santos**

EUROPEAN COMMISSION

COMMISSION STAFF WORKING DOCUMENT

Full Impact Assessment

Accompanying the document

Proposal for a Commission Regulation

**Implementing Directive 2009/125/EC of the European
Parliament and of the Council with regard to Ecodesign
requirements for Power, distribution and small transformers**

COMMISSION STAFF WORKING DOCUMENT

Full Impact Assessment

Accompanying the document

Proposal for a Commission Regulation

**Implementing Directive 2009/125/EC of the European
Parliament and of the Council with regard to Ecodesign
requirements for Power, distribution and small transformers**

Lead DG: ENTR

Associated DG:

Other involved services:

Table of contents

List of Tables.....	8
cronyms.....	7
Definitions.....	9
1.Procedural Issues and Consultation.....	10
1.1.Organization and Timing.....	10
1.2. Impact Assessment Board.....	11
1.3. Transparency of the Consultation Process.....	11
1.4.Preliminary Results of Stakeholder Consultation.....	12
2.Problem Definition.....	13
2.1 Market and Regulatory Failures.....	13
2.2 Baseline Scenario.....	19
2.2.1. Scope of Transformers Covered (VITO & BIOIS, 2011).....	20
2.2.2. Relevance of Product Group for Eco-design Implementing Measures.....	22
2.2.3. Market Structure.....	22
2.2.4. Sales and Stock.....	23
2.2.5. Definition of Base-cases.....	25
2.3 Future Trends.....	27
2.3.1 Energy Price Evolution	27
2.3.2 Aluminium vs. Copper in the Windings.....	29
2.3.3. Grain Oriented Steel vs. Amorphous steel (Main Source (DoE, 2011)).....	31
2.4 Policies and Measures supporting energy efficiency of distribution transformers in non-EU countries.....	34
2.5 Legal Basis for EU Action.....	36
4.Policy Options.....	38
4.1 Option 1: Baseline (BAU).....	38
4.2 Option 2: Self-regulation.....	39
4.3 Option 3: Energy Labelling Only.....	39
4.4 Option 4: Ecodesign MEPS Regulation on Transformers.....	40

4.4.1	Definition of the Types of Energy-Using Products Covered...	41
4.4.2	Implementation of Ecodesign Requirements.....	41
4.5	Option 5: Energy Labelling + Ecodesign Requirements.....	42
5.	Impact Analysis.....	44
5.1	Economic analysis.....	48
5.1.1.	Energy savings.....	48
5.2	Administrative Costs.....	51
5.3	Social impacts.....	51
5.4	Greenhouse gas emission reduction.....	52
5.5	Technology, functionality and innovation.....	53
5.6	Health and safety.....	54
5.7	Uncertainties and Sensitivity Analysis.....	54
5.7.1	Assumptions related to the load factors.....	54
5.7.2	Assumptions related to the electricity tariff.....	63
6.	Conclusions.....	70
6.1	Proposed Efficiency Levels Based and Sensitivity Analysis Results.....	70
6.2	General Conclusions.....	71
7.	Monitoring and Evaluation.....	73
8.	References.....	74
	List of Annexes.....	75
	ANNEX 1: Minutes of Consultation Forum meeting.....	76
	ANNEX 2: Commission Staff Working Document.....	85
	ANNEX 3: Structure of the methodology used for establishing the technical, environmental and economic analysis.....	99
	ANNEX 4: Methodology to Calculate the Life Cycle Cost (LCC).....	100
	ANNEX 5: Sensitive Analysis Tables.....	105
	ANNEX 6: Life Cycle Cost Shaded Diagram.....	112
	ANNEX 7: Environmental Impacts (VITO & BIOIS, 2011).....	120
	ANNEX 8: European Distribution Transformer Loss standards.....	132

List of Figures

List of Tables