EPEE

European Partnership for Energy and the Environment

Japan Business Council in Europe

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Joint industry position paper

Double Regulation: a serious challenge putting at risk the benefits and success of Ecodesign

EPEE, representing the heating, cooling and refrigeration industry, and the Japan Business Council in Europe, JBCE, welcome and support the Ecodesign and Energy Labelling Directives. As recognised stakeholders, EPEE and JBCE have actively followed a number of relevant product groups over the past years that fall under this framework.

However, EPEE and JBCE are seriously concerned about the development of double regulation which puts at risk the principle of technology neutrality which has so far been one of the key pillars of success of Ecodesign and one of the main reasons why industry has lend its support to this framework since its introduction. **Technology neutrality leaves the necessary freedom to manufacturers to innovate and to develop the most efficient solutions while ensuring cost-effectiveness which is crucial for the purchasing decisions of professional customers and consumers.**

Close analysis demonstrates, however, that regulating components to be incorporated into already regulated products, represents a serious challenge to the entire concept of Ecodesign. **Clearly, the small *potential* gain in energy efficiency by prescribing the use of highly efficient components is not worth the significant associated risks, such as:**

- The additional complication of market surveillance and enforcement, which has in any case already been identified as the 'weak link' of the Ecodesign and Energy Labelling Framework.
- The disproportionate burden for SMEs which may not be able to cope with these additional important constraints;
- The significant cost increase which will push **professional customers and** consumers to buy less costly and hence less efficient products, putting at risk the achievable gains in energy consumption;

In addition to these risks, **EPEE and JBCE emphasize that the small gain in energy efficiency cannot even be guaranteed**. Examples clearly show that overall product efficiency is complex, depending on a number of factors and technical features. Besides, the energy consumption of major components (e.g. compressors, fans, motors etc.) is already accounted for in the calculation of the energy efficiency of the system (e.g. air conditioner, refrigeration product etc.). The following paper will give practical examples to illustrate EPEE's and JBCE's concerns.

- ➲ Given the European Commission's strong political will for **'better regulation'** and the success and benefits of the Ecodesign approach, which is based on technical neutrality, **EPEE and JBCE call upon the European Commission and Member States to avoid double regulation.**
- ➲ **Components** (such as fans, motors, etc.) which are already or will soon be indirectly regulated by integrated equipment measures **need to be excluded from the scope of specific Ecodesign requirements.**

1. Creating significant burden for manufacturers and market surveillance authorities

Double regulation would result in considerable complications for both manufacturers and market surveillance authorities due to the difficulty of testing components which are incorporated into products and the misalignment of the various implementation tiers of the individual measures.

1.1. Accentuating the problem of market surveillance

Market surveillance has been identified as one of the 'weak links' of the Ecodesign and Energy Labelling Directives[1]. It is, however, essential to ensure that products comply with legislation to avoid market distortions, protect professional customers and consumers from fraudulent products and contribute to achieving the energy and climate goals.

Regulating components will further add to the difficulties of market surveillance, as it would require specific tests of the individual components integrated into a final product.

Either the components would need to be extracted which results in additional problems due to testing with correct power supply and controls, or the components would need to be tested inside the product. This also leads to complications as testing needs to be done at the best efficiency point while it will only be possible to do so at the working point.

1.2. Distorting redesign cycles due to the misalignment of implementation tiers

Manufacturers need time to redesign their products: A partial redesign takes around 18 months and a full redesign approximately 30 months. A misalignment of different implementation tiers for component requirements and product requirements would significantly distort these redesign cycles and are hardly possible for manufacturers to manage. The complexity of re-design options can be found in Annex I below.

Manufacturers of HVARC products, a large share of which represent SMEs, will be facing an unmanageable combination of various implementation tiers entering into force in the coming years, in addition to the HFC phase-down as set out by the F-gas Regulation (see overview in Annex II).

2. Challenging the principle of technical neutrality puts at risk the cost-effectiveness and energy efficiency of HVARC products

Increasing product efficiency is complex and based on a number of factors and technical features. It is at the heart of the engineering expertise and innovation of companies.

To be able to design the optimal compromise between efficiency and cost-effectiveness, which is crucial for the purchasing decisions of professional customers and consumers, companies need technical neutrality. Therefore, EPEE and JBCE are strong supporters of the "technology neutrality principle" in the Ecodesign Framework Directive, which sets energy efficiency requirements for products and leaves the freedom for manufacturers to innovate and determine the best solutions.

[1] Ecofys (2014), Final technical report, Evaluation of the Energy Labelling Directive and specific aspects of the Ecodesign Directive ENER/C3/2012-523.

Technology neutrality leaves the necessary freedom to manufacturers to innovate and to develop the most efficient solutions while ensuring cost-effectiveness which is crucial for the purchasing decisions of professional customers and consumers.

Examples clearly show that overall product efficiency is complex, depending on a number of factors and technical features. Product designers are constantly faced with enormous pressure to choose the most efficient combination of design options to reach the overall product MEPS at the LLCC, so that the end price of the product remains competitive and affordable to the consumer.

Example 1: A condensing unit with a non-compliant fan achieves an overall efficiency increase by 11% in SEPR, compared to the same condensing unit using a compliant fan. The non-compliant fan has a higher air flow and in terms of efficiency is optimised for the real pressure drop across the condenser, resulting in less work of the compressor (lower condensing temperature) and therefore overall higher efficiency. Indeed, the compressor consumes about 90% of the total power and the fan only about 10%. On the contrary, an improvement of 10% of the refrigerant cycle for example, which includes inter alia an optimization of heat exchanger and compressor efficiency, leads to close to 10% of improvement in the entire unit, i.e. almost 10 times more than the fan. This demonstrates that only the most reasonable fan-condenser assembly with a proper match of the compressor results in higher performance.
(see Annex III).

Example 2: In the case of an air conditioner/heat pump the situation is similar, and, even with 10% efficiency improvement of the fan's efficiency, only 1% efficiency improvement in the air conditioner/heat pump can be achieved (please see Annex IV below) as the power consumption of fans is relatively low compared to that of other components in the final product.

Given the European Commission's strong political will for **'better regulation'** and the success and benefits of the Ecodesign approach, which is based on technical neutrality, **EPEE and JBCE call upon the European Commission and Member States to avoid double regulation.**

Components (such as fans, motors, etc.) which are already or will soon be indirectly regulated by integrated equipment measures need to be excluded from the scope of specific Ecodesign requirements.

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About EPEE:

The European Partnership for Energy and the Environment (EPEE) represents the refrigeration, air-conditioning and heat pump industry in Europe. Founded in the year 2000, EPEE's membership is composed of 40 member companies, national and international associations.

EPEE member companies realize a turnover of over 30 billion Euros, employ more than 200,000 people in Europe and also create indirect employment through a vast network of small and medium-sized enterprises such as contractors who install, service and maintain equipment.

EPEE member companies have manufacturing sites and research and development facilities across the EU, which innovate for the global market.

As an expert association, EPEE is supporting safe, environmentally and economically viable technologies with the objective of promoting a better understanding of the sector in the EU and contributing to the development of effective European policies. Please see our website (www.epeeglobal.org) for further information.

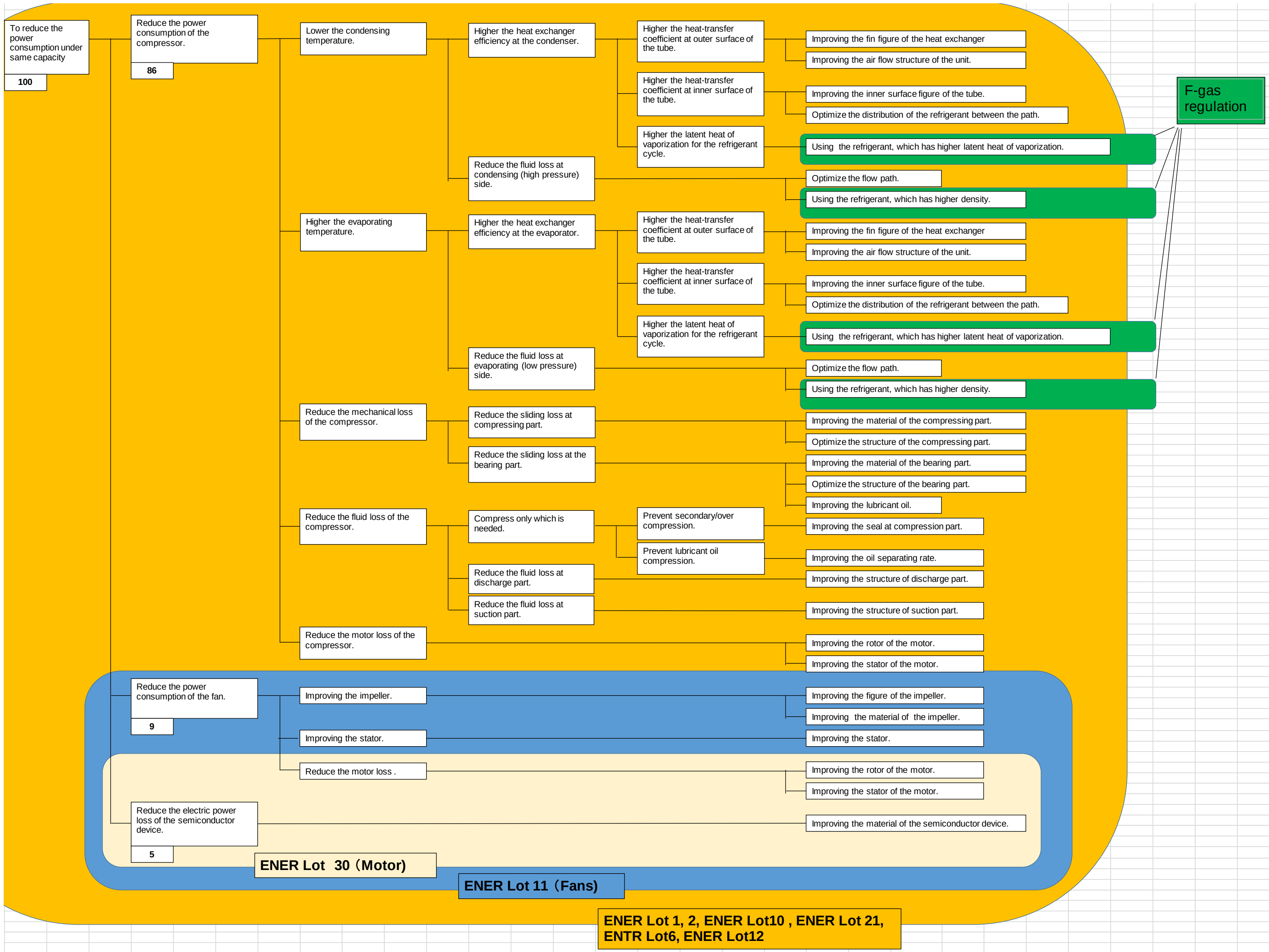
About JBCE:

Created in 1999, the Japan Business Council in Europe (JBCE) is a leading European organisation representing the interests of almost 70 multinational companies of Japanese parentage active in Europe. Our members operate across a wide range of sectors, including information and communication technology, electronics, chemicals, automotive, machinery, wholesale trade, precision instruments, pharmaceutical, railway, textiles and glass products. Together, our member companies represented in 2013 global sales of 1.4 trillion euros. Building a new era of cooperation between the European Union (EU) and Japan is the core of our activities. www.jbce.org

EPEE
European Partnership for Energy and the Environment

Japan Business Council in Europe

Annex I: "Double regulation" and design options paradox



Annex II – Overview of upcoming Ecodesign implementation tiers:

Upcoming implementation tiers for components																		
Title of Regulation	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
(EU) No 327/2011: fans driven by motors between 125 W and 500 W																		
(EU) No 640/2009 and 4/2014: Electric motors																		
ENER Lot 30: special motors and variable speed drives																		
ENER Lot 29: pumps (tiers tbc)																		
Upcoming implementation tiers for final products																		
(EU) No 206/2012: air conditioners ≤ 12 kW and comfort fans													**750 GW**					
(EU) No 813/2013: space heaters and combination heaters ≤ 400 kW																		
(EU) No 814/2013: water heaters ≤ 400 kW																		
(EU) No 1253/2014: ventilation units																		
ENTR Lot 1 professional refrigeration products								**2500 GW**										
ENER Lot 12: commercial refrigeration products								**2500 GW**		**150 GW**								
ENER Lot 21: air heating, cooling products, high temperature process chillers																		
Other upcoming implementation tiers																		
F-gas Regulation										**150 GW**								
Phase Down			**100%**	**93%**	**93%**	**63%**	**63%**	**63%**	**45%**	**45%**	**45%**	**31%**	**31%**	**31%**	**24%**	**24%**	**24%**	**21%**

Annex III – Calculation of SEPR for Condensing Unit with compliant fan (1) and with non-compliant fan (2):

	j	Tj (°C)	hj	partload%	refrigeration demand	COPPL	Ph*Tj	PH*Tj/COPDC
	1	-19	0,1	60%	5,35	3,33	0	0
	2	-18	0,4	60%	5,35	3,33	2	1
	3	-17	0,6	60%	5,35	3,33	3	1
	4	-16	1,1	60%	5,35	3,33	6	2
	5	-15	1,7	60%	5,35	3,33	9	3
	6	-14	3,0	60%	5,35	3,33	16	5
	7	-13	3,8	60%	5,35	3,33	20	6
	8	-12	5,7	60%	5,35	3,33	30	9
	9	-11	8,9	60%	5,35	3,33	48	14
	10	-10	11,8	60%	5,35	3,33	63	19
	11	-9	17,3	60%	5,35	3,33	93	28
	12	-8	20,0	60%	5,35	3,33	107	32
	13	-7	28,7	60%	5,35	3,33	154	46
	14	-6	39,7	60%	5,35	3,33	213	64
	15	-5	56,6	60%	5,35	3,33	303	91
	16	-4	76,4	60%	5,35	3,33	409	123
	17	-3	106,1	60%	5,35	3,33	568	171
	18	-2	153,2	60%	5,35	3,33	820	247
	19	-1	203,4	60%	5,35	3,33	1.089	327
	20	0	248,0	60%	5,35	3,33	1.327	399
	21	1	282,0	60%	5,35	3,33	1.509	454
	22	2	275,9	60%	5,35	3,33	1.477	444
	23	3	300,6	60%	5,35	3,33	1.609	484
	24	4	310,8	60%	5,35	3,33	1.663	500
D	25	5	336,5	60%	5,35	3,33	1.801	541
	26	6	350,5	61%	5,48	3,25	1.922	592
	27	7	363,5	63%	5,62	3,17	2.041	645
	28	8	368,9	64%	5,75	3,09	2.121	687
	29	9	371,6	66%	5,88	3,01	2.185	727
	30	10	377,3	67%	6,01	2,93	2.269	775
	31	11	376,5	69%	6,14	2,85	2.314	813
	32	12	386,4	70%	6,28	2,77	2.426	877
	33	13	389,8	72%	6,41	2,69	2.499	930
	34	14	384,4	73%	6,54	2,61	2.515	965
C	35	15	370,5	75%	6,67	2,53	2.472	979
	36	16	345,0	76%	6,81	2,46	2.348	953
	37	17	328,0	78%	6,94	2,40	2.276	948
	38	18	305,4	79%	7,07	2,34	2.159	923
	39	19	261,9	81%	7,20	2,28	1.886	828
	40	20	223,9	82%	7,33	2,22	1.642	741
	41	21	196,3	84%	7,47	2,15	1.466	681
	42	22	163,0	85%	7,60	2,09	1.239	592
	43	23	141,8	87%	7,73	2,03	1.096	540
	44	24	121,9	88%	7,86	1,97	959	487
B	45	25	104,5	90%	7,99	1,91	835	438
	46	26	85,8	91%	8,13	1,86	697	376
	47	27	71,5	93%	8,26	1,81	591	327
	48	28	56,6	94%	8,39	1,76	475	270
	49	29	43,3	96%	8,52	1,71	369	216
	50	30	31,0	97%	8,66	1,66	269	162
	51	31	20,2	99%	8,79	1,61	178	110
A	52	32	11,9	100%	8,92	1,56	106	68
	53	33	8,2	100%	8,92	1,56	73	47
	54	34	3,8	100%	8,92	1,56	34	22
	55	35	2,1	100%	8,92	1,56	19	12
	56	36	1,2	100%	8,92	1,56	11	7
	57	37	0,5	100%	8,92	1,56	5	3
	58	38	0,4	100%	8,92	1,56	4	2
						total	54.836	20.753
							SEPR	**2,64**

	j	Tj (°C)	hj	partload%	refrigeration demand	COPPL	
	1	-19	0,1	60%	5,75	3,66	
	2	-18	0,4	60%	5,75	3,66	
	3	-17	0,6	60%	5,75	3,66	
	4	-16	1,1	60%	5,75	3,66	
	5	-15	1,7	60%	5,75	3,66	
	6	-14	3,0	60%	5,75	3,66	
	7	-13	3,8	60%	5,75	3,66	
	8	-12	5,7	60%	5,75	3,66	
	9	-11	8,9	60%	5,75	3,66	
	10	-10	11,8	60%	5,75	3,66	
	11	-9	17,3	60%	5,75	3,66	
	12	-8	20,0	60%	5,75	3,66	
	13	-7	28,7	60%	5,75	3,66	
	14	-6	39,7	60%	5,75	3,66	
	15	-5	56,6	60%	5,75	3,66	
	16	-4	76,4	60%	5,75	3,66	
	17	-3	106,1	60%	5,75	3,66	
	18	-2	153,2	60%	5,75	3,66	
	19	-1	203,4	60%	5,75	3,66	
	20	0	248,0	60%	5,75	3,66	
	21	1	282,0	60%	5,75	3,66	
	22	2	275,9	60%	5,75	3,66	
	23	3	300,6	60%	5,75	3,66	
	24	4	310,8	60%	5,75	3,66	
D	25	5	336,5	60%	5,75	3,66	
	26	6	350,5	61%	5,90	3,57	
	27	7	363,5	63%	6,04	3,49	
	28	8	368,9	64%	6,18	3,40	
	29	9	371,6	66%	6,32	3,32	
	30	10	377,3	67%	6,46	3,23	
	31	11	376,5	69%	6,61	3,14	
	32	12	386,4	70%	6,75	3,06	
	33	13	389,8	72%	6,89	2,97	
	34	14	384,4	73%	7,03	2,89	
C	35	15	370,5	75%	7,17	2,80	
	36	16	345,0	76%	7,32	2,73	
	37	17	328,0	78%	7,46	2,67	
	38	18	305,4	79%	7,60	2,60	
	39	19	261,9	81%	7,74	2,53	
	40	20	223,9	82%	7,89	2,46	
	41	21	196,3	84%	8,03	2,40	
	42	22	163,0	85%	8,17	2,33	
	43	23	141,8	87%	8,31	2,26	
	44	24	121,9	88%	8,45	2,19	
B	45	25	104,5	90%	8,60	2,13	
	46	26	85,8	91%	8,74	2,07	
	47	27	71,5	93%	8,88	2,02	
	48	28	56,6	94%	9,02	1,97	
	49	29	43,3	96%	9,16	1,91	
	50	30	31,0	97%	9,31	1,86	
	51	31	20,2	99%	9,45	1,80	
A	52	32	11,9	100%	9,59	1,75	
	53	33	8,2	100%	9,59	1,75	
	54	34	3,8	100%	9,59	1,75	
	55	35	2,1	100%	9,59	1,75	
	56	36	1,2	100%	9,59	1,75	
	57	37	0,5	100%	9,59	1,75	
	58	38	0,4	100%	9,59	1,75	
						total	

Annex IV – Example air conditioner/heat pump and different efficiency improvement scenarios

	Baseline	5% point efficiency improvement with compressor	2% point efficiency improvement with semi-conductor devices	10% point efficiency improvement with fans
Power consumption of compressor	86	82	86	86
Power consumption of fans	9	9	9	8
Electric power loss of the semi-conductor devices	5	5	3	5
Total power consumption	100	96	98	99