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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 22.7.2009
SEC(2009) 1016 final

COMMISSION STAFF WORKING DOCUMENT

Accompanying document to the

**PROPOSAL FOR A COMMISSION REGULATION
implementing Directive 2005/32/EC with regard to Ecodesign requirements for
circulators**

FULL IMPACT ASSESSMENT – PART 4

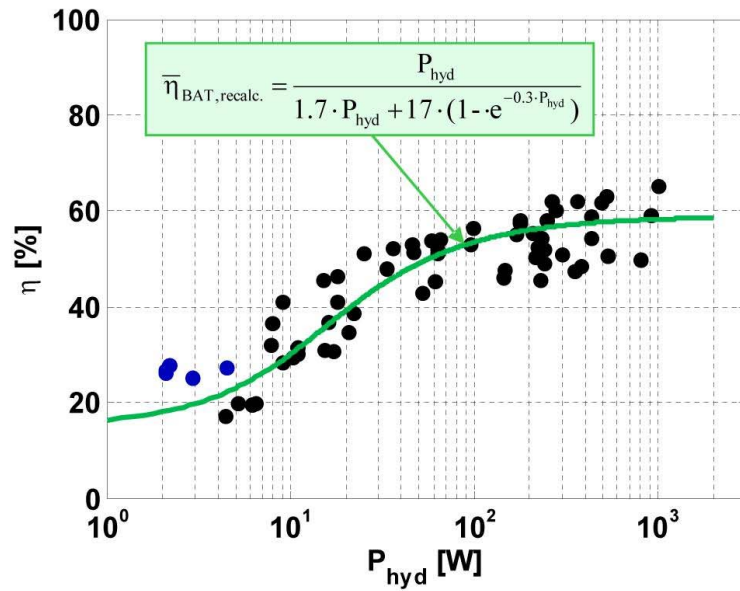
**{C(2009) 5677}
{SEC(2009) 1017}**

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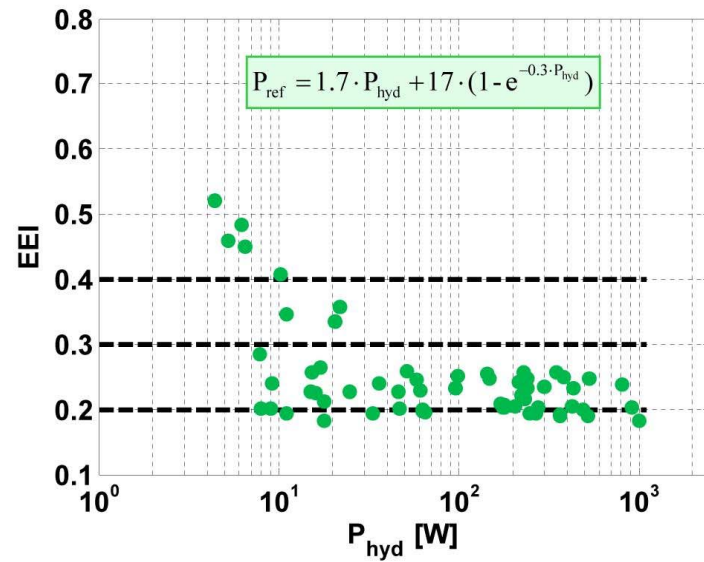
ANNEX 6: EEI CALCULATION METHOD – TECHNICAL BACKGROUND TO THE UPDATE -
CONTINUED 3

Plausibility check

$\bar{\eta}_{\text{BAT}}$ recalculated by means of the new P_{ref} curve



EEI based on P_{ref} new-refined



$$EEI = \frac{P_{avg}}{P_{ref}} \cdot C$$

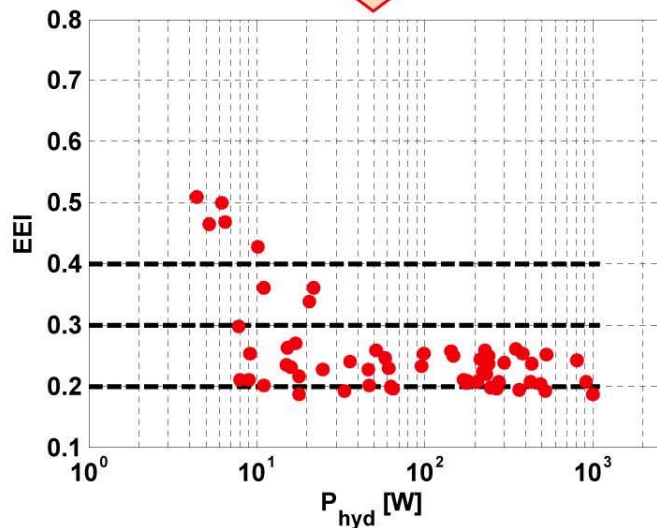
Factor C was fixed to $C_{20\%} = 0.49$ in order to achieve EEI values

- 0.2 for 20% of the considered circulator types

Comparison of EEI values P_{ref} new with P_{ref} new-refined

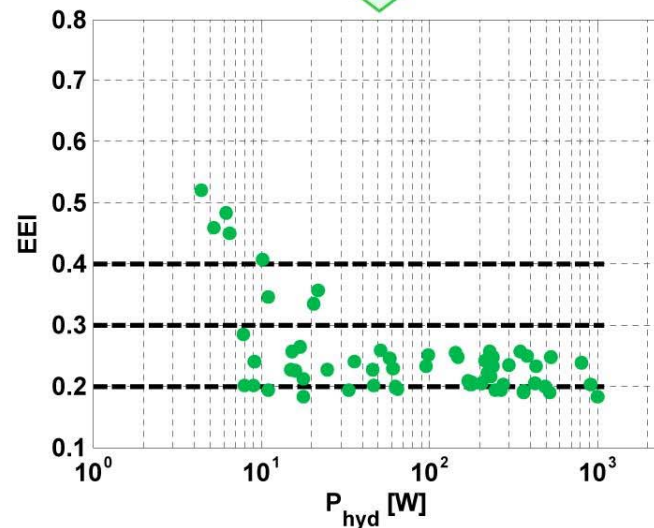
$$P_{ref} = 1.69 \cdot P_{hyd} - 8.06 \cdot e^{-0.07 \cdot P_{hyd}} + 19.09$$

EEI scaled with $C_{20\%} = 0.49$



$$P_{ref} = 1.7 \cdot P_{hyd} + 17 \cdot (1 - e^{-0.3 \cdot P_{hyd}})$$

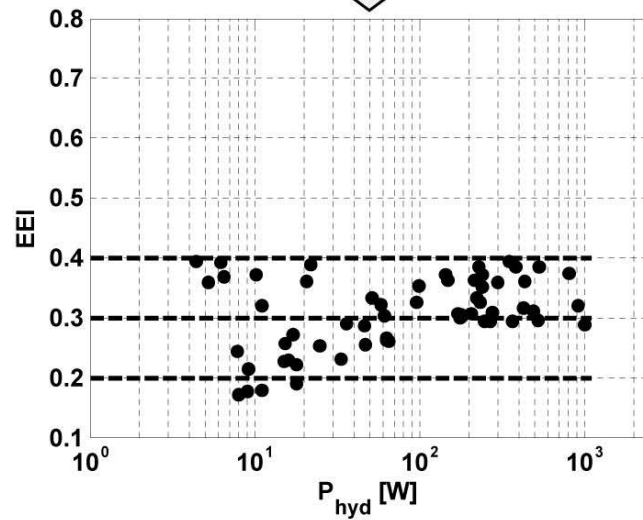
EEI scaled with $C_{20\%} = 0.49$



Comparison of EEI values P_{ref} old with P_{ref} new-refined

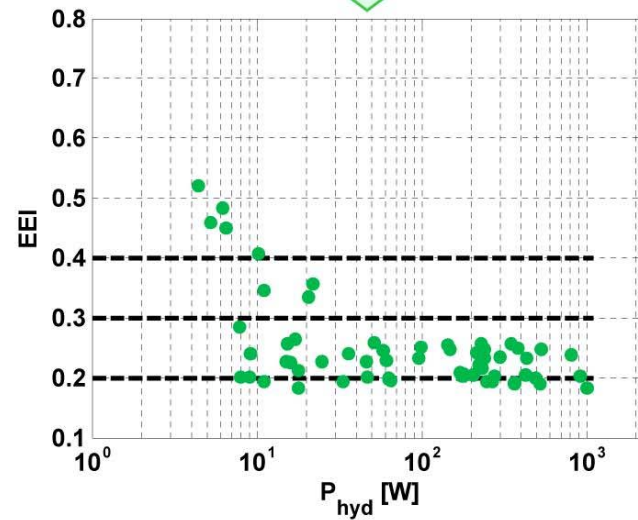
$$P_{ref} = 2.21 \cdot P_{hyd} + 55 \cdot (1 - e^{-0.39 \cdot P_{hyd}})$$

EEI without scaling



$$P_{ref} = 1.7 \cdot P_{hyd} + 17 \cdot (1 - e^{-0.3 \cdot P_{hyd}})$$

EEI scaled with $C_{20\%} = 0.49$



Companies requested for data



- Askoll
- Biral
- Circulatingpumps
- DPA Pumps
- Grundfoss
- Halm
- IMP Pumps
- Laing
- Salmson
- Smedegard
- Wilo