



Zeeland small wind turbine testfield

Summary results from test period
1 April 2008 - 28 February 2009

| Manufacturer | Ropatec | Southwest | Zephyr | Renewable Devices | Raum Energy | Ropatec | Energy Ball | Fortis | Turby | Ampair | Windwalker | |
|--------------|-------------|-------------|-------------|-------------------|-------------|-------------|-------------|------------|-------------|-------------|------------|------------|
| Model | WRE 060 | Skystream | Airdolphin | Swift | Raum 1.3 | WRE 030 | Energy Ball | Passaat | Montana | Turby | Ampair 600 | Windwalker |
| Price | € 39,162.00 | € 10,742.03 | € 17,548.00 | € 13,208.00 | | € 30,862.00 | € 4,324.00 | € 9,239.16 | € 18,508.07 | € 21,350.00 | € 8,925.00 | - |

Test results

| | Production in kWh | | | | | | | | | | | |
|---------|-------------------|------|-----|-----|-----|----|-----|------|-----|-----|---|---|
| Apr-08 | 48 | 175 | 42 | 22 | 1 | 6 | 56 | 265 | 6 | 1 | 0 | 0 |
| May-08 | 41 | 171 | 29 | 12 | 20 | 4 | 39 | 207 | 27 | 7 | 0 | 0 |
| Jun-08 | 25 | 106 | 17 | 7 | 8 | 2 | 33 | 169 | 19 | 19 | 0 | 0 |
| Jul-08 | 29 | 118 | 19 | 8 | 11 | 3 | 33 | 170 | 19 | 18 | 0 | 0 |
| Aug-08 | 39 | 143 | 24 | 12 | 18 | 4 | 42 | 200 | 22 | 21 | 0 | 0 |
| Sep-08 | 32 | 133 | 21 | 6 | 6 | 2 | 31 | 155 | 13 | 16 | 0 | 0 |
| Oct-08 | 0 | 151 | 28 | 17 | 27 | 4 | 45 | 199 | 20 | 18 | 0 | 0 |
| Nov-08 | 53 | 260 | 49 | 44 | 78 | 8 | 75 | 311 | 34 | 31 | 0 | 0 |
| Dec-08 | 44 | 196 | 38 | 20 | 43 | 4 | 47 | 229 | 36 | 26 | 0 | 0 |
| Jan-09 | 69 | 240 | 44 | 42 | 75 | 7 | 62 | 256 | 6 | 27 | 0 | 0 |
| Feb-09 | 42 | 163 | 31 | 0 | 45 | 4 | 40 | 196 | 0 | 21 | 0 | 0 |
| Apr-Feb | 422 | 1856 | 342 | 190 | 332 | 48 | 503 | 2357 | 202 | 205 | 0 | 0 |

Test results

| | Consumption in kWh | | |
|---------|--------------------|-----|----|
| Apr-Feb | 8 | 28 | 86 |
| | 15 | 0 | 0 |
| | 3 | 130 | 17 |
| | 88 | | |

Test results

| | Net production minus consumption in kWh | | |
|---------|---|------|-----|
| Apr-Feb | 414 | 1828 | 256 |
| | 317 | 48 | 503 |
| | 2354 | 72 | 188 |
| | -88 | | |

Indicative average windspeed and direction

| Month | Windspeed in m/s | Wind direction in deg |
|---------|------------------|-----------------------|
| Apr-08 | 3.5 | 184 |
| May-08 | 3.7 | 109 |
| Jun-08 | 3.4 | 230 |
| Jul-08 | 3.4 | 210 |
| Aug-08 | 3.6 | 214 |
| Sep-08 | 3.4 | 187 |
| Oct-08 | 3.2 | 194 |
| Nov-08 | 4.4 | 186 |
| Dec-08 | 3.7 | 172 |
| Jan-09 | 4.4 | 148 |
| Feb-09 | 3.4 | 214 |
| Average | 3.6 | 186 |

The price given is inclusive of tax and is for a complete package including erection, generator, mast, foundation, inverter, cabling, and installation.

The wind direction is given in degrees where North is 0, East is 90, South is 180, and West is 270.

The wind direction and windspeed are only indicative data that are not officially certified.

This data has been translated from the Zeeland Windtest original which is in Dutch, by David Sharman of Ampair.

The original kWh data has concealed decimal point data for the kWh and so there are slight discrepancies.

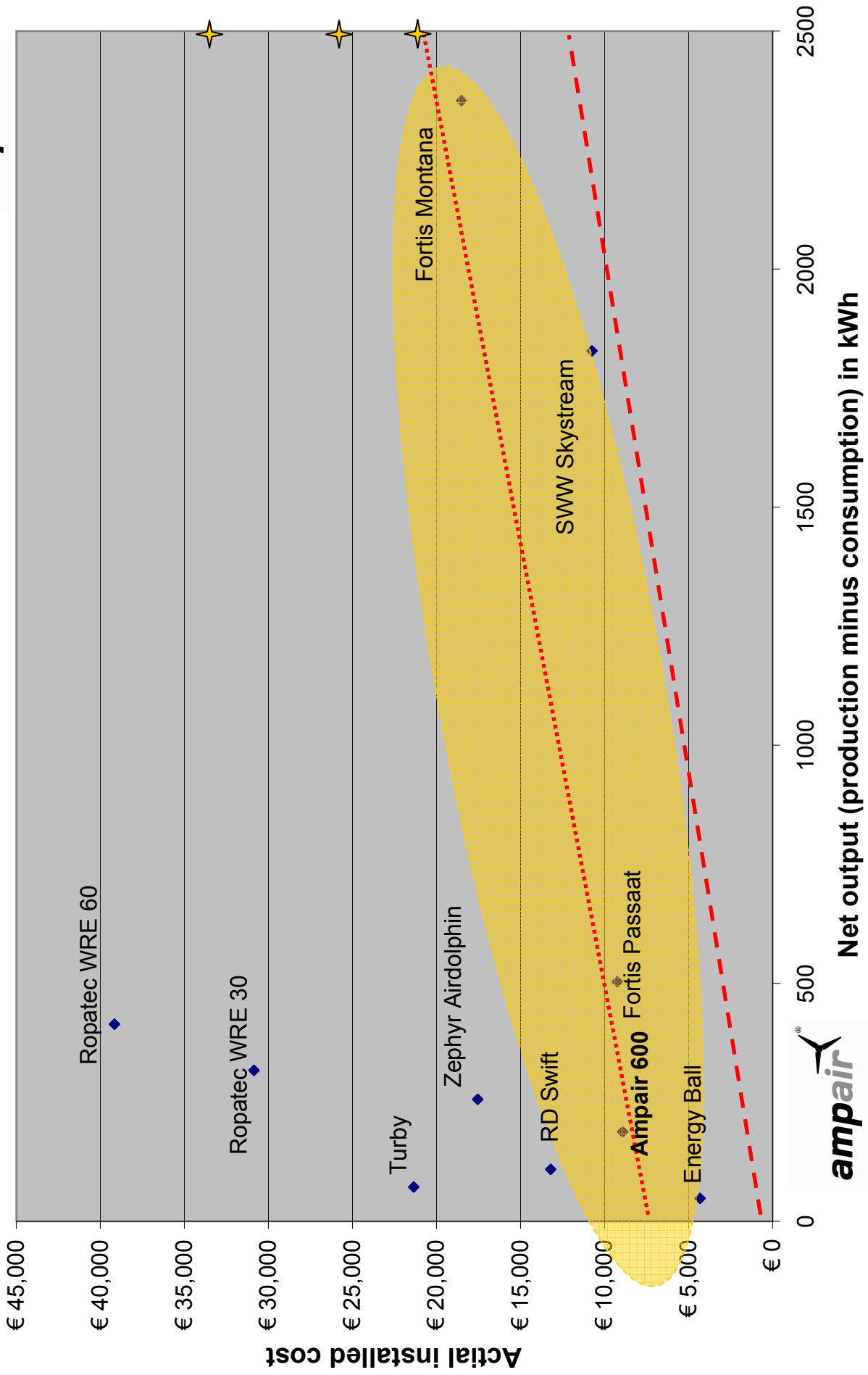
The Swift was removed on 31 Jan 2009 for the Raum 1.3

The Raum will be completely installed in the middle of April

The Turby has had a fault during all of February 2009.

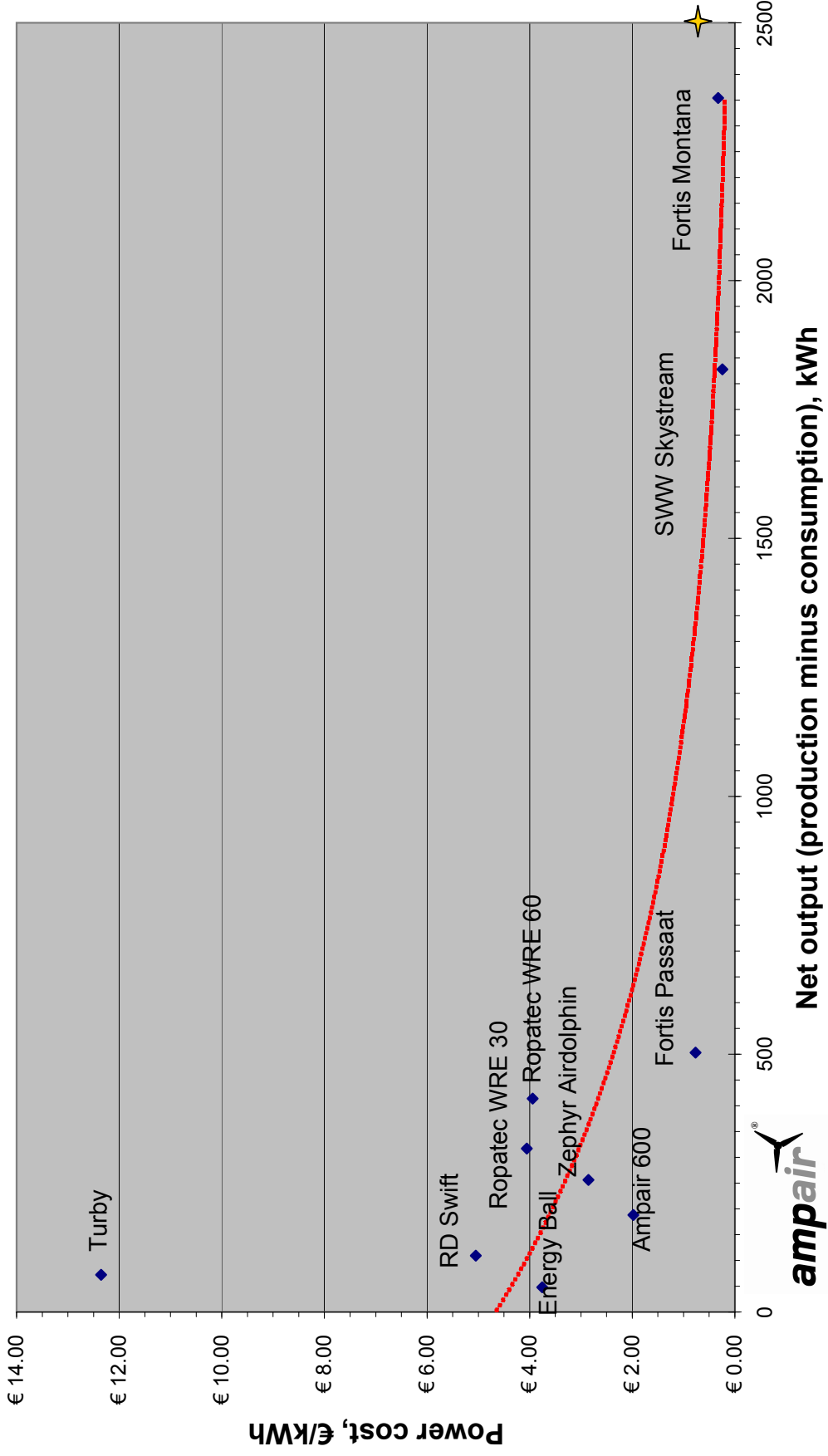


Cost effectiveness per Zeeland results - production vs total cost



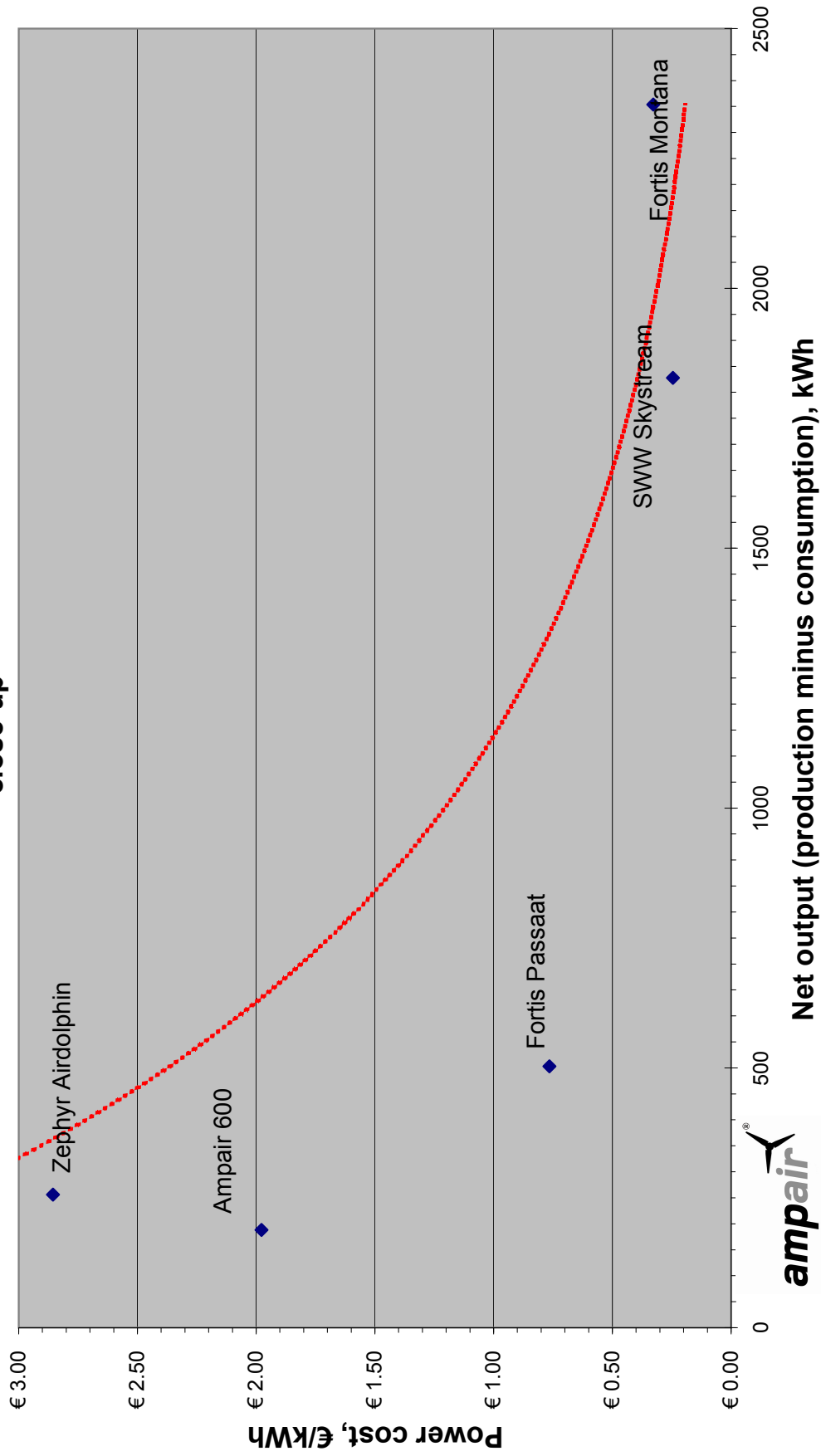


Cost effectiveness per Zeeland results - production vs power cost





Cost effectiveness per Zeeland results - production vs power cost close-up





Efficiency comparison (kWh/yr/m2)

