ELECTRO ERG LTD **Gamma Manager Kft.**

EBM™ POWER PLANT TECHNOLOGY SEMINAR AT "THE NEW ENERGY FROM REFUSE AND THE ENVIRONMENT CONFERENCE" IN PALERMO, SICILY

PRESENTED BY

PROFESSOR L. I. SZABÓ

October 30, 2009.
Palermo, Sicily

Gamma Manager Kft.
Hungary 2040 Budaörs

Contents

Tab 1A

THE 100 % CLEAN, NON-TOXIC, NON-NUCLEAR MINI EBM HOUSEHOLD UNIT: "MINI EBM.HU"

PRESENTED BY PROFESSOR L. I. SZABO, AT THE

"ERA CONFERENCE", OCTOBER 30, 2009, PALERMO, ITALY

INTRODUCTION

1. The development of the Mini EBM.Hu[1] dates back to 1992 when the Scientific Staff of Gamma Manager Kft. in Hungary ("Gamma") began testing the BB-Lego 150 kg and immediately thereafter the C 4/4 1,500 kg energy producing Units, the 10 kWe and 50 kWe Units, respectively;

2. At that time the R & D work did not reach the stage to discover that the size of the usable/sellable clean energy produced by these Units can be increased by the speed of the rotor, by the weight of the built-in steel mass and a number of other EBM parameters;

3. The first discovery was the weight parameter which indicated that the size of the usable/sellable produced energy by the EBM Units can be appreciably increased by building larger and larger EBM Units, i.e. heavier and heavier Units;

[1]Mini EBM.Hu = Mini Energy By Motion Household Unit

4. Thus, the focus centered on designing and testing larger/heavier Units and obtaining prices and deliveries from manufacturers and establishing the economics of such Units;

5. Of late, our attention turned back to the smaller Household sized Units of the 15 kWe to 100 kWe sizes and beyond.

6. The 50 kWe size is not by accident: We are envisioning the Mini EBM.Hu Units by the Household to use it for producing the usual grid quality electric power and heating/cooling needs of the Household together with filling the battery of the electric passenger cars which are just around the corner; As well, the 50 kWe size alone, or coupling them together will also be used to drive medium to larger trucks directly: That is it will become the engine of such trucks; Last but not least the Unit will generate monthly income, to the owner by selling excess power to the local utility Company!

7. By increasing the presently used speed of the rotor from 1,500 RPM to 3,000 RPM (or 3,600 RPM in North America) and beyond, the 50 kWe Unit will more than double the 50 kWe capacity size!

Tab 1B

INTRODUCTORY LECTURE WORKSHOP GIVEN BY PROFESSOR L.I. SZABO BASED ON HIS RESEARCH REPORT ON THE EBM MACHINES, 1996

INTRODUCTION TO THE STATIC TEST

I ask for the patience of the reader for starting with such a well-known fact, that if we supply the appropriate electric current to the terminals of an electric motor, or an electric generator the rotor of the unit starts rotating.

This is exactly what we have done with a standard commercially available salient pole "LEROY" type A.C. generator of approximately 180 kW in size, with a little "twist".

The twist was that we supplied distinct discrete ordinates of a sine shaped current at every 2 degrees of the rotor position and measured the torque on the shaft of the intermittently rotated rotor, using a torque meter. This is like watching a slowed down motion picture, with the added advantage, that we were able to record the value of the torque at every $\alpha = 2°$ position of the rotor, i.e. $m_m (\alpha)$.

For a complete T = 360° electric cycle, we then added up the measured values of $m_m (\alpha)$ and averaged them. Then assigned a sign of Mm to denote the average mechanical torque over the "T" cycle of this two coiled electric unit, at a given excitation currents I_1 D.C. and I_2 sine shaped A.C. and at a given phase angle $\varphi_\alpha i_2$.

This $\varphi_\alpha i_2$ was measured from an $\alpha = 0°$ position of the rotor.

Of course, this exercise was carried out 'to' ascertain the correctness of the well-known "Electric Torque" equation for two coiled electric rotating machines given in electrical engineering text books, such as the one by professor G.J. Retter's "Matrix And Space – Phasor Theory of Electrical Machines", published by Akadémiai Kiadó, Budapest, 1987.

p, 97, equation 2-18 as follows, using our notations:

Eq. 1.01

$$m_m(\alpha) = m_{electric}(\alpha) = \frac{1}{2} i_1^2(\alpha) * \lambda'_{11}(\alpha) + i_1(\alpha) * i_2(\alpha) * \lambda'_{12}(\alpha) + \frac{1}{2} i_2^2(\alpha) * \lambda'_{22}(\alpha)$$

Where: (a) $\lambda'_{11}(\alpha)$ Is the first derivative of the self-inductance of the excitation magnetic circuit measured in Henry, At α;

(b) $\lambda'_{12}(\alpha)$ Same as (a) above, for the mutual inductance between the excitation and the armature circuits;

(c) $\lambda'_{22}(\alpha)$ Same as (a) above, for coil N_2.

In the above eq. 1.01 the mechanical instantaneous Torque $m_m(\alpha)$ is measured directly with the Torque meter at every α position of the rotor, as described above.

In order to test the equality between the Mechanical Torque and the Electric Torque given by eq. 1.01, we must first measure the various λ's at the same α positions of the rotor.

Having obtained the λ's, and knowing the values in Amperes of I_1 and I_2 at every α position of the rotor we can then compute the value of $m_{electric}(\alpha) = m_e(\alpha)$ at every α position, using eq 1.01 above.

To our not a very great surprise, we found that for the commercially available energy converter unit of a Leroy type rotating electrical two coiled machine the equation $\overline{M}_m = \overline{M}_e$ holds true for a complete "T" cycle as well as for every α, calculated from eq. 1.01. After we have repeatedly ascertained that eq. 1.01 is correct we subjected the so called non-commercial C4 salient pole type two coiled EBM unit, which has approximately the same weight as that of the Leroy unit, to the same procedure as described above, again the purpose of the exercise was to prove that eq. 1.01 holds true for this EBM unit, too!

Contrary to our expectations and to our surprise, after repeated controlled tests we found that the Mechanical Torque over "T" cycle for the EBM unit was not equal by a

significant margin with that of the Electrical Torque, over the same “T” cycle, i.e. $\overline{M}_m \neq \overline{M}_e$ and in addition, $m_m(\alpha) \neq m_e(\alpha)$ for every α position.

Within a small scatter, for the C4 unit the repeated ratio of the Mechanical Torque to the Electrical Torque for the C4 unit is, over T cycle was found to be:

Eq. 1.02 Energy Ratio [C4] = $\overline{M}_m / \overline{M}_e$ = 1.25

This means, that an EBM unit of the C4 type with an iron mass of approximately 1500 kg will yield an energy gain of up to, 25% over and above the customary energy balance. In other words, at the expense of one (1) kilowatt-hour of electric energy we can get 1.25 kilowatt-hour of mechanical shaft power. It turned out, as will be seen later, that during dynamic tests of the C4 unit, rotating at a standard operating speed of 1000 rpm, due to Eddy currents which diminishes the active useable size of the magnetic cross section of the iron, this gain is approximately 15% to 16%, that is less than 25%.
We will show how this gain diminishes to zero or increases even above 125% with the use of various iron masses. But first let us discuss the equation which accurately computes the instantaneous mechanical Torque of the C4 type EBM unit;
Testing a large number of various equations we found that the following equation describes the mechanical torque of the C4 type unit accurately:

Eq. 1.03 $$m_m(\alpha) = k_{11}(\alpha) * I_1^2(\alpha) + k_{12}(\alpha) * I_1(\alpha) * I_2(\alpha) + k_{22}(\alpha) * I_2^2(\alpha)$$

where the various k's are measured in Henries and must be established by tests;
The I_1 and I_2 are as before, the excitation and armature currents, respectively.

It should be noted, that based on several hundred of controlled tests, the “k” values always were equal to the corresponding λ' values for commercial energy converters of the rotating two coiled electrical units, as they should be, but they were significantly larger and larger for EBM units as the iron mass increased and/or if the diameter of the rotor of the unit was increased.

Tab 2A

Measuring Usable Excess "Over Unity" Shaft Power of the EBM E-720 Unit in Budapest, using Joule's Method in Checking his 1st "Chief" Law of Thermodynamics; -and- the Increase of such Sellable Energy Due to Increased Iron Weight

By Professor L. I. Szabó

Introduction

To numerically test his 1st "Chief" Law of Thermodynamics, Joule used in his experiment the device shown in Figure 1. as follows:

1. In a well-sealed container the water inside is stirred (agitated) by the rotating blades and the temperature rise due to the friction between the blades and the fluid is measured.

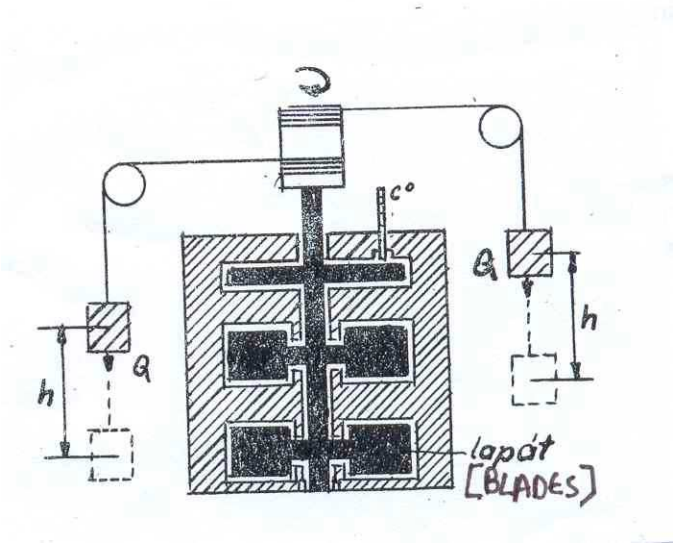


Figure 1.

2. The blades are rotated through the shaft by the two (2) Q [kg] weights as they descend over a distance of h [meter];

3. Since the container is well sealed ("adiabatic container"), no heating energy produced by the rising temperature could escape from the container and thus the increased "inner energy" increase of the water "A" can be simply measured as:

EQ (I) $A = m*c\ (t_2-t_1)$, where:

(a) m = mass of water,

(b) c = specific heat of water,

(c) t_2 = increased temperature of water, and

(d) t_1 = temperature of water before the agitation of the fluid began;

The shaft energy "M" being provided ("transmitted") by the two (2) Q [kg] weights to increase the inner energy of the water can also be easily measured as:

EQ (II) M = 2*Q*h [meter kilogram], where

(a) Q [kg] = weight,

(b) h[meter] = distance,

(c) M [meter-kilogram] = torque = shaft energy;

Since no energy can escape from the container and only shaft energy "M" is being provided/transmitted to increase the inner energy "A" of the water, Joule concluded, based on his 1st (Chief) Law of Thermodynamics (being the Law of Energy Conservation) that the following must be true:

EQ (III) A = M, or

EQ (IV) $2Qh = m*c\ (t_2-t_1)$, or

EQ (V) M [meter-kg] = $m*c\ (t_2-t_1)$ [calorie]

Based on Joule's tests and measurements dividing by the right hand side of EQ (V) to obtain:

EQ (VI) 1 calorie = $\frac{2Qh}{m * c(t_2 - t_1)}$

4. By accurate measurements, the following were obtained:

(a) 1 calorie = 0,427 mkg
(b) 1 kilocalorie = 427 mkg
(c) 1 calorie = 4,186 x 10^7 ERG = 4,186 Joule
(d) 1 joule = 1 Watt-second = 0,239 calorie
(e) 1 mkg = 2,34 calorie
(f) 1 kilowatt hour = 860 kilocalorie
(g) 1 Horse Power = 632,4 kilocalorie/hr

5. Our main observation relative to Joule's experiment is not the "Conservation of Energy" as he stipulated, but that the "shaft energy" or torque can be measured by the generated heating energy, as will be seen in the next section, using actual measured test data for the EBM E-720 unit.

The energy production by the EBM Technology

Technology

1. We will use the well-known test method of the Law of Conservation of Energy used by Joule in establishing his 1st (Chief) Law of Thermodynamics to show the production of excess energy by the EBM Units, known as “free energy” or “the over the unity energy production”;

2. (a) We will use a simple example, and
   (b) The result of a repeated controlled test series of the E-720 EBM Unit;

3. The example:

   (a) It is well known that if we rotate the shaft of any rotating equipment, such as the E-720 EBM UNIT, then due to the friction of the bearings heat energy will be produced which can be measured in several ways as follows:

      (i) Let the rotating torque be: M [Newton Meter], and
      (ii) The mechanical rotating angular speed be: ω [1/sec];
      (iii) Thus, the rotational performance due to friction and ventilation, which will appear as heat performance in accordance with the law of conservation of energy, is:

   EQ.1: $P_{heat} = M \times \omega$ [watt];

   (b) If we do not have a torque meter to measure “M”, then we can still measure P_{heat} [watt], as in EQ.1, by using a heat exchanger, and by putting the device which is to be measured into a “perfect non-leaking” box; The heat exchanger

will convert the warm air heated up by the friction of the bearings into, say, warm water; The heat energy content obtained is, as follows:

EQ.2: $$P^{*}_{heat} = 4{,}190 * \left(\frac{kg}{\sec} \right) * (t_2 - t_1) \text{ [Watt]}$$

where:

(i) 4,190 is the specific heat of the water;

(ii) $kg/\sec$ is the $weight/\sec$ of the water flowing out from the heat exchanger in every second, and

(iii) t_2 - t_1, is the difference in temperature, measured in centigrade of the outflow/ inflow of water;

(c) Due to the law of energy conservation, we must have, using EQs. 1 and 2:

EQ.3: $P_{heat} = P^{*}_{heat}$

(d) EQ.3 means that the torque can be measured by the heat energy performance, using EQs. 1,2 and 3, as follows:

EQ.4: $$M \times \omega = 4{,}190 \times \left(kg/\sec \right) [t_2 - t_1], \text{ from which:}$$

EQ.5: $$M = \frac{1}{\omega} \left\{ 4{,}190 \times \left(kg/\sec \right) [t_2 - t_1] \right\}$$

where torque is in Newton meter;

4. The proof of production of excess energy ("over the unity") by the EBM UNITS;

(a) We will use actual controlled test series of the E-720 EBM UNIT to duplicate the procedure given above under 3 of (B);

(b) In an actual test series with the EBM UNITS all the total inputted and outputted performances (energies) must be measured, and the difference must be recorded to arrive at the "over the unity" energy production, if any, of the unit under examination;

(c) Definitions:

EQ.6: Excess energy = ΔP = Total output - Total input [watt]

EQ.7: Over unity = $$\frac{\Delta P}{Totalinput} = \frac{Totaloutput - Totalinput}{Totalinput} = \frac{Totaloutput}{Totalinput} - 1$$

Expressed as a percent:

EQ.8: Over unity (%) = $$\left(\frac{\Delta P}{Totalinput}\right) * 100\% = \left(\frac{Totaloutput}{Totalinput} - 1\right) * 100\%$$

Example:

If Total output/Total input = 1.3, then over unity (%) = 30%;

(d) Components of the total output and total input during actual tests when we are measuring torque performance (shaft performance) of the EBM Units, using EQs.4 and 6 are:

(i) Since we are measuring the output heat energy in an enclosed box, we must take into account the produced heat by the UNIT which escapes through the walls of the box, similarly to the leaked out heat from a house during heating season; This will be designated as:
$P_{leakageoutput}$ [watt], produced by the unit in the box;

(ii) The output heat performance which is measured as the out-flowing hot water from the heat exchanger, designated as: $P_{wateroutput}$ [watt], the energy of which is produced by the unit in the box;

(iii) Thus the total output power = $P_{wateroutput} + P_{leakageoutput}$ measured in watt;
Note: power = energy per unit of time.

(iv) The total input power components are:

A The driving motor input through the shaft:
$P_{motorinput} = M \times \omega$ [watt]

B The inputted excitation power to maintain the magnetic field of the unit: $P_{excitationinput}$ [watt]

C The inputted power by the ventilating fans inside the box to circulate the hot air in the box: $P_{ventinput}$ [watt]

D Thus total input power = $P_{motorinput} + P_{excitinput} + P_{ventinp.}$

(v) Therefore, using EQ.6, we have:

EQ.9: $\Delta P = (P_{wateroutput} + P_{leakageoutput}) - (P_{motorinput} + P_{excinput} + P_{ventinput})$ [watt]

- or -

In Megawatts:

EQ.10: $$\Delta P = \frac{EQ.9}{10^6} \quad [MW]$$

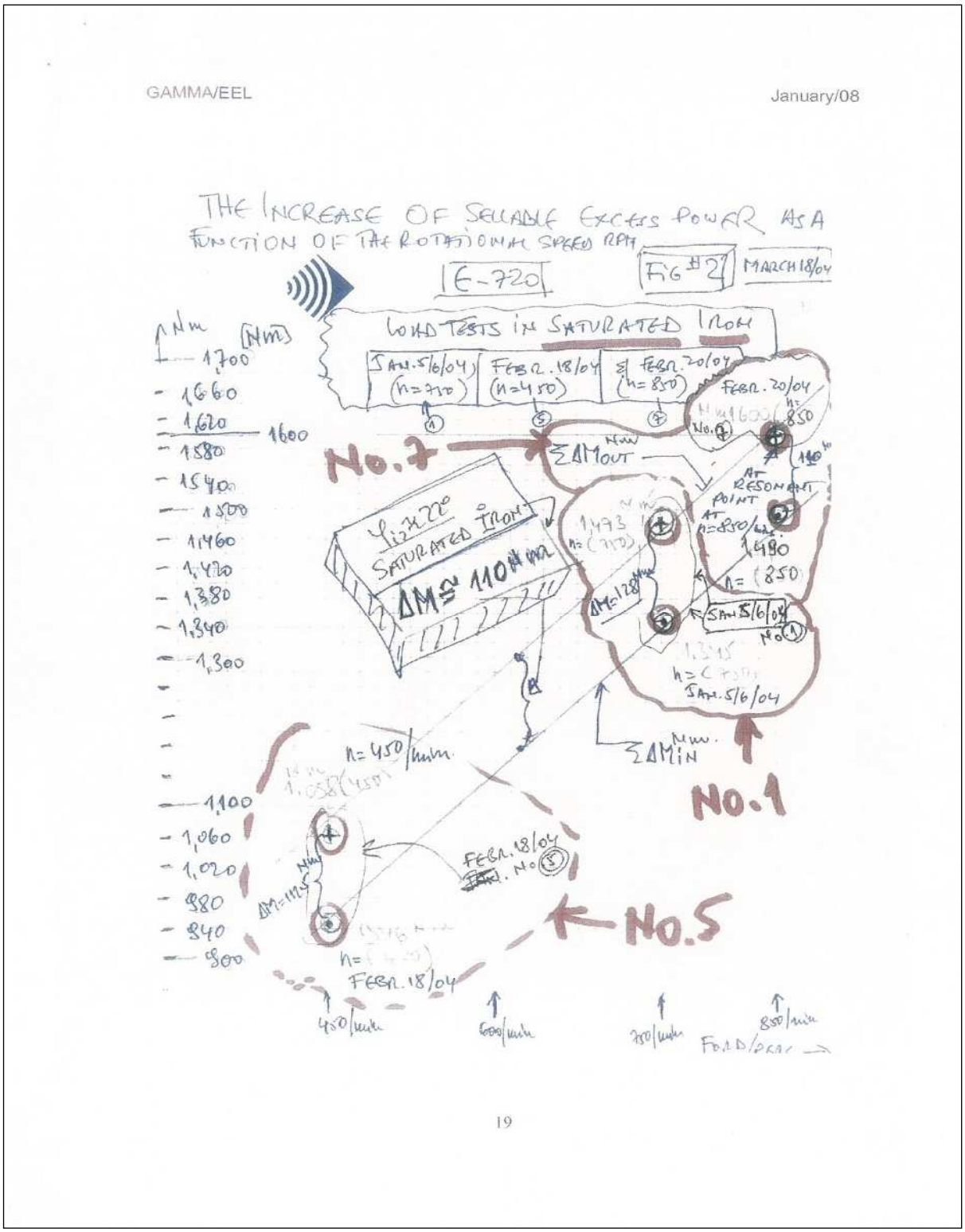
EQ.11: The extra torque from EQ.9 $$\Delta M = \frac{\Delta P}{\omega_{mechanical}} \quad [Nm]$$

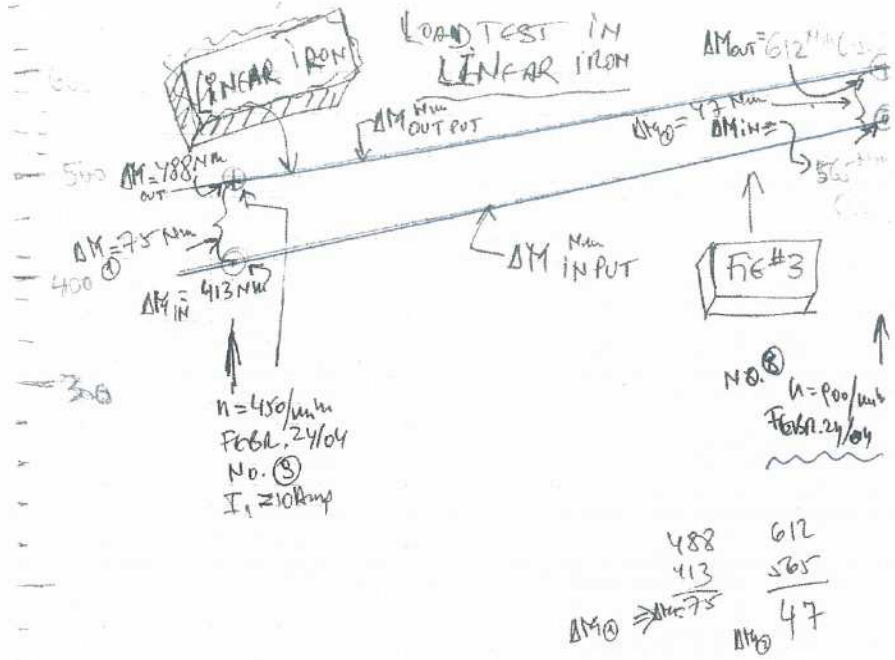
(e) The simplest test which can be followed and checked by an observer to prove the over unity energy production by the EBM Units is when providing only magnetic excitation of the unit and leaving the armature coils (working coils) open; Thus, making the unit equivalent to a unit which has only permanent magnets, which maintain the magnetic field of the unit; It is known that such a unit cannot and should not be able to produce extra, over the unity torque energy, or carry any load whatsoever!

Tab 2B

Statutory Declarations and Certifications:
Please visit the Research Page at
Gammamanager.com

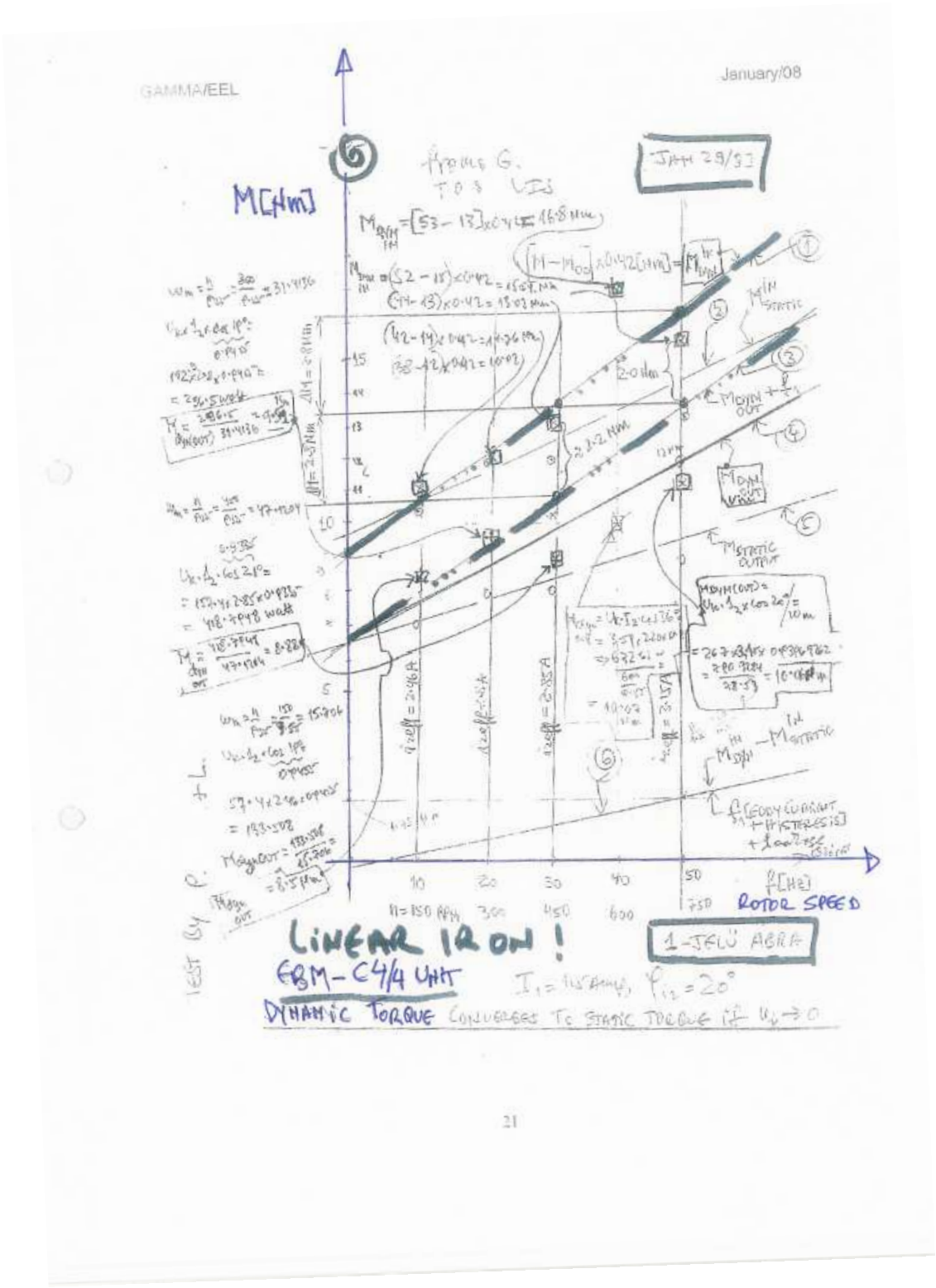
Tab 3


GAMMA/EEL
January/08
THE INCREASE OF SELLABLE EXCESS POWER AS A FUNCTION OF THE ROTATIONAL SPEED RPM
IE-720
Fig #2
MARCH 18/04
LOAD TESTS IN SATURATED IRON
JAN. 5/6/04 (n=720)
FEBR. 18/04 (n=450)
FEBR. 20/04 (n=850)
[Nm]
1,700
1,660
1,620
1600
1,580
1,540
1,500
1,460
1,420
1,380
1,340
1,300
1,100
1,060
1,020
980
940
900
No.7
No.1
No.5
ΔM≤ 110 Nm
n=450/min
FEBR. 18/04
450/min
600/min
750/min
850/min

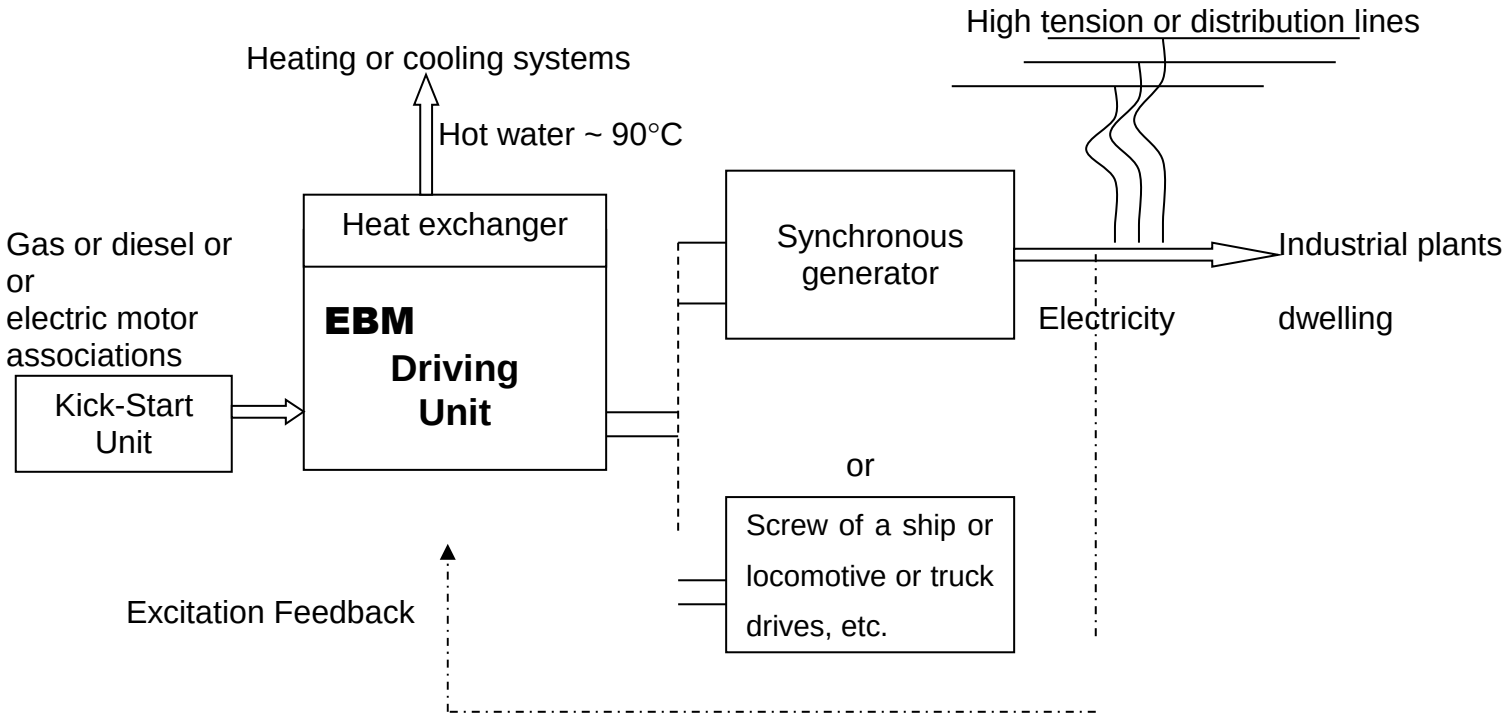


EBM E-720

LINEAR IRON


GAMMA/EEL
January/08
M[Nm]
LINEAR IRON !
EBM-C4/4 UNIT
DYNAMIC TORQUE CONVERGES TO STATIC TORQUE
ROTOR SPEED
21

Tab 4



EBM Energy Flow Chart

Tab 5

Table of Selected EBM Driving Units as of January 2008
(Prices quoted are for the first (1st) units only! Prices for additional units are expected to be 25 % to 30 % less due to costs already paid for the dies and tools included in prices of the 1st units.)
(Savings in fuel prices per year and present market value today of these savings, in Euro.)

No.	Type	Sellable capacity(1) [MW]		Gross weight(2) [Ton]	Price(3) Million Euro	Dimensions (a)x(b)x(c) [mm]	Expected manufacturing throughput time(4)	Savings in €/year in fuel(5a) / Market value € over 20 yr(5b)
		Electric	Heat/Cool					
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
1	SSX 16/16 A	1.5	0.45	141.75	5.2	3500x4748x4300	12 to 15 months	713,314/yr 3,566,570
2	SSX 32/32 A	5.0	1.5	299.76	13.7	5100x5200x5960	15 months	2,377,714/yr 11,888,570
3	3 units of G-100.	40.0	12	3x634= 1,902	82.4	3x(4700x10630x4400)	20 months	19,021,171/yr 95,108,570
4	2 units of G-300 C4/4	150.0	45	2x3,233= 6,466	269.5	2x(3500x22200x8800)	30 months	71,331,429/yr 356,657,143

Notes:
(1) Shaft power + heat;
(2) Excluding generator and electronics; (This is comparable to standard plants plus weight of coal pile for 40 years!)
(3) Including driving "fuel" for 40 years; Power house and substation prices are extra, if any;
(4) This time for the first unit after signing contract. (Line-ups at manufacturer is not taken into account, units made to order!)
(5) Example for 150 MW_e EBM Unit:
(a) Annual savings at 8 USA Cents/kWH_e non-escalating: 1,248,300,000 kWH/yr x 0.08 / 1.4=71,331,429.- Euro/yr
(b) Present market value today: 71,331,429/0.2=356,657,143.- €.

Dimensions for one unit: (b)

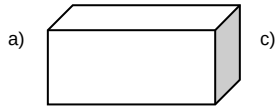
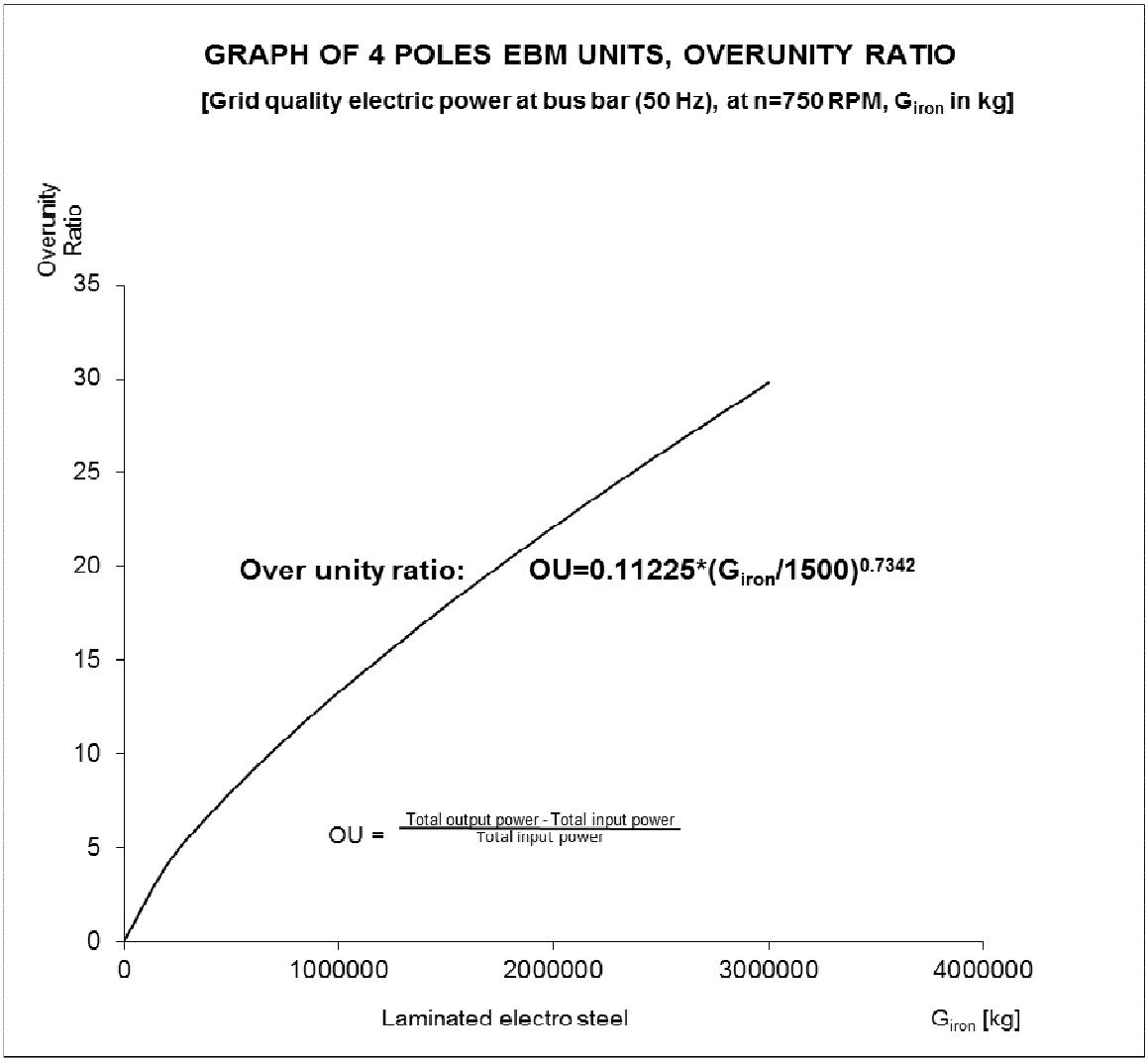


Table I/B

Tab 6

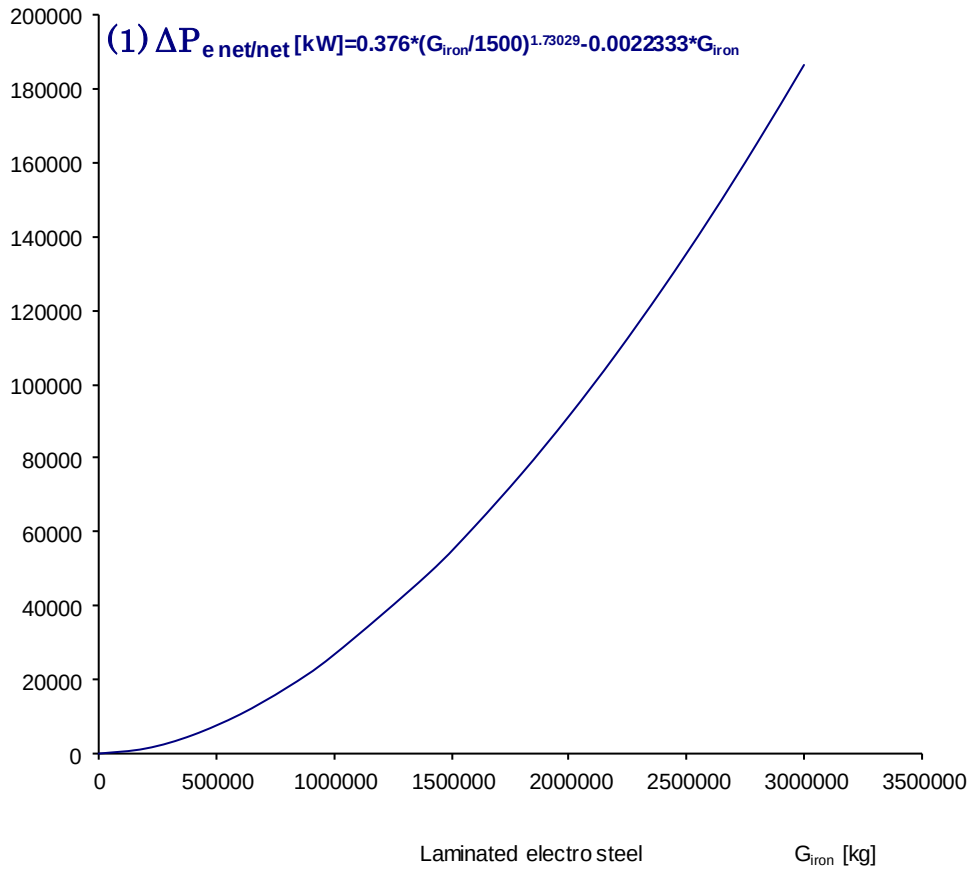

GRAPH OF 4 POLES EBM UNITS, OVERUNITY RATIO
[Grid quality electric power at bus bar (50 Hz), at n=750 RPM, G iron in kg]
Overunity Ratio
35
30
25
20
15
10
5
0
Over unity ratio: OU=0.11225*(G iron/1500)0.7342
OU = Total output power - Total input power / Total input power
0
1000000
2000000
3000000
4000000
Laminated electro steel
G iron [kg]

GRAPH OF 4 POLE EBM UNITS

[Grid quality electric power at bus bar, (50 Hz), at n=750 RPM, G_{iron} in kg]

Open coil

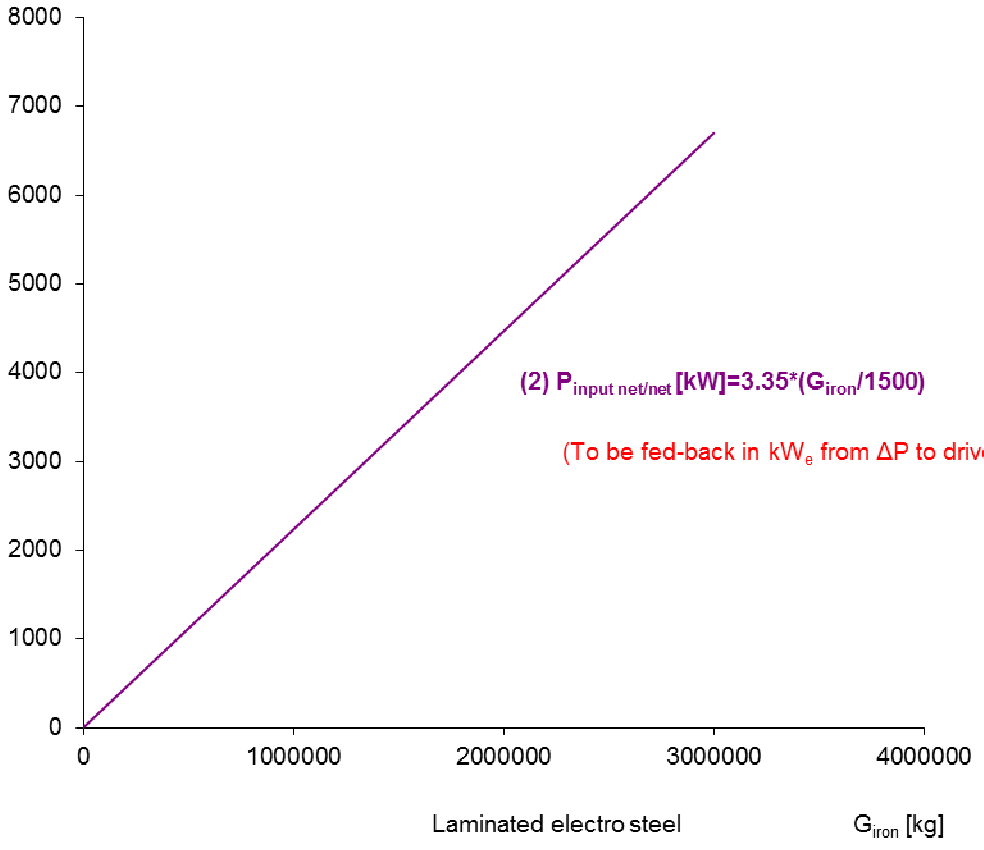
1. $\Delta P_{e\ net/net}$ [kW]



GRAPH OF 4 POLES EBM UNITS

[Grid quality electric power at bus bar (50 Hz), at n=750 RPM, G_{iron} in kg]

2. $P_{input\ net/net}$ [kW]



Tab 7A

100% Debt Financing Cash Flow Projections for 1.5 Megawatt EBM Unit, 10 Years of Revenue (All Figures in Euro)

	Total Installed Cost except land and power house ("TIC")	Electric Capacity (kW)			Load Factor (95%)		Elec. Selling Price (0.135 €/kwh)					Inflation (OMA Expenses)	
	€ 5,200,000	1,500			0.95		0.135					3% p.a.	
			1st Year	**2nd Year**	**3rd Year**	**4th Year**	**5th Year**	**6th Year**	**7th Year**	**8th Year**	**9th Year**	**10th Year**	**TOTALS**
1	Operating Revenue	OPRV											
	a) electricity (1.5 MW @ 0.135 €/kwh)		€ 1,685,205	€ 1,685,205	€ 1,685,205	€ 1,685,205	€ 1,685,205	€ 1,685,205	€ 1,685,205	€ 1,685,205	€ 1,685,205	€ 1,685,205	€ 16,852,050
	b) heat (7 months/yr, 500 kW @ 0.03 €/kwh)		€ 75,600	€ 75,600	€ 75,600	€ 75,600	€ 75,600	€ 75,600	€ 75,600	€ 75,600	€ 75,600	€ 75,600	€ 756,000
	c) Carbon Trading Revenue (@ 0.08 €/kwh)			€ 998,640	€ 998,640	€ 998,640	€ 998,640	€ 998,640	€ 998,640	€ 998,640	€ 998,640	€ 998,640	€ 8,987,760
	d) Total OPRV		€ 1,760,805	€ 2,759,445	€ 2,759,445	€ 2,759,445	€ 2,759,445	€ 2,759,445	€ 2,759,445	€ 2,759,445	€ 2,759,445	€ 2,759,445	€ 26,595,810
2	Operation, Maintenance & Admin	OMA											
	a) 4 operators X 40,000 €/person		€ 160,000	€ 164,800	€ 169,744	€ 174,836	€ 180,081	€ 185,484	€ 191,048	€ 196,780	€ 202,683	€ 208,764	€ 1,834,221
	b) 1 manager X € 50,000		€ 50,000	€ 51,500	€ 53,045	€ 54,636	€ 56,275	€ 57,964	€ 59,703	€ 61,494	€ 63,339	€ 65,239	€ 573,194
	c) Repairs and maintenance		€ 60,000	€ 61,800	€ 63,654	€ 65,564	€ 67,531	€ 69,556	€ 71,643	€ 73,792	€ 76,006	€ 78,286	€ 687,833
	d) Real taxes and insurance		€ 200,000	€ 206,000	€ 212,180	€ 218,545	€ 225,102	€ 231,855	€ 238,810	€ 245,975	€ 253,354	€ 260,955	€ 2,292,776
	e) Rent of power house and land		€ 140,000	€ 144,200	€ 148,526	€ 152,982	€ 157,571	€ 162,298	€ 167,167	€ 172,182	€ 177,348	€ 182,668	€ 1,604,943
	f) Total OMA		€ 610,000	€ 628,300	€ 647,149	€ 666,563	€ 686,560	€ 707,157	€ 728,372	€ 750,223	€ 772,730	€ 795,912	€ 6,992,966
3	Depreciation + royalty												
	a) over 10 years (TIC/10)	DEXP	€ 520,000	€ 520,000	€ 520,000	€ 520,000	€ 520,000	€ 520,000	€ 520,000	€ 520,000	€ 520,000	€ 520,000	€ 5,200,000
	b) License Fee (10% x OPRV)	R	€ 176,081	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 2,659,581
	c) Total [3(a)+3(b)]		€ 696,081	€ 795,945	€ 795,945	€ 795,945	€ 795,945	€ 795,945	€ 795,945	€ 795,945	€ 795,945	€ 795,945	€ 7,859,581
4	Operating Expense (OMA+DEXP+R)	OPXP	€ 1,306,081	€ 1,424,245	€ 1,443,094	€ 1,462,508	€ 1,482,505	€ 1,503,102	€ 1,524,316	€ 1,546,168	€ 1,568,674	€ 1,591,856	€ 14,852,547
5	Management fee: 10 % x OPRV	MF	€ 176,081	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 275,945	€ 2,659,581
6	Total Expenses before Tax (OPXP+MF)	TE	€ 1,482,161	€ 1,700,189	€ 1,719,038	€ 1,738,452	€ 1,758,449	€ 1,779,046	€ 1,800,261	€ 1,822,112	€ 1,844,619	€ 1,867,801	€ 17,512,128
7	Pre-tax Profit (OPRV-TE)	PTP	€ 278,644	€ 1,059,256	€ 1,040,407	€ 1,020,993	€ 1,000,996	€ 980,399	€ 959,184	€ 937,333	€ 914,826	€ 891,644	€ 11,743,263
8	Corporate Income Tax (@ 25% x PTP)	CIT	€ 69,661	€ 264,814	€ 260,102	€ 255,248	€ 250,249	€ 245,100	€ 239,796	€ 234,333	€ 228,707	€ 222,911	€ 2,270,920
9	**After Tax Profit [(7) - (8)]**	**ATP**	**€ 208,983**	**€ 794,442**	**€ 780,305**	**€ 765,744**	**€ 750,747**	**€ 735,299**	**€ 719,388**	**€ 703,000**	**€ 686,120**	**€ 668,733**	**€ 6,812,761**
10	**Cash-in-Hand after tax (ATP+DEXP+MF)**		**€ 905,064**	**€ 1,590,387**	**€ 1,576,250**	**€ 1,561,689**	**€ 1,546,691**	**€ 1,531,244**	**€ 1,515,333**	**€ 1,498,944**	**€ 1,482,064**	**€ 1,464,678**	**€ 14,672,342**
11	Notes: 1) Pay back time of investor's 5.2 Million EURO is, ~ 3.7 years;												
	2) € 0.08/kWh "Carbon Trading" revenue from the second year. (Carbon trading under the Kyoto Accord; See Chicago Climate Exchange's daily quotes for carbon trading;)												
	3) Electric selling price is 13.5 Euro Cents/kwh, heat selling price is 3 Euro Cents/kwh, Carbon Trading Revenue 8 Euro Cents/kwh from the second year; Blue Certificate Revenue not used!												
	4) Management Fee: paid to owners;												
	5) Engineering study cost is included in the above;												
	6) Cost of electromagnetic fuel is included in the 5.2 Million EURO (TIC) for 40 years (life cycle of plant)												

Tab 7B

100% Debt Financing Cash Flow Projections for a 40 Megawatt EBM Unit, 10 Years of Revenue (All figures in Euro)

	Total Installed Cost except land and power house ("TIC")	Electric Capacity (kw)			Load Factor (95%)		Elec. Selling Price (0.135 EURO/kw h)					Inflation (OMA Expenses)	
	€ 82,400,000	40,000			0.95		0.135					3% p.a.	
			1st Year	**2nd Year**	**3rd Year**	**4th Year**	**5th Year**	**6th Year**	**7th Year**	**8th Year**	**9th Year**	**10th Year**	**TOTALS**
1	Operating Revenue	OPRV											
	a) electricity (40.0 MW @ 0.135 EURO/kwh)		€ 44,938,800	€ 44,938,800	€ 44,938,800	€ 44,938,800	€ 44,938,800	€ 44,938,800	€ 44,938,800	€ 44,938,800	€ 44,938,800	€ 44,938,800	€ 449,388,000
	b) heat (7 months., 10 MW @ 0.03 EURO/kwh)		€ 1,512,000	€ 1,512,000	€ 1,512,000	€ 1,512,000	€ 1,512,000	€ 1,512,000	€ 1,512,000	€ 1,512,000	€ 1,512,000	€ 1,512,000	€ 15,120,000
	c) Carbon Trading Revenue (avg 0.08 EURO/kwh)			€ 26,630,400	€ 26,630,400	€ 26,630,400	€ 26,630,400	€ 26,630,400	€ 26,630,400	€ 26,630,400	€ 26,630,400	€ 26,630,400	€ 239,673,600
	d) Total OPRV		€ 46,450,800	€ 73,081,200	€ 73,081,200	€ 73,081,200	€ 73,081,200	€ 73,081,200	€ 73,081,200	€ 73,081,200	€ 73,081,200	€ 73,081,200	€ 704,181,600
2	Operation, Maintenance & Admin	OMA											
	a) 8 operators X € 40,000 /person		€ 320,000	€ 329,600	€ 339,488	€ 349,673	€ 360,163	€ 370,968	€ 382,097	€ 393,560	€ 405,366	€ 417,527	€ 3,668,441
	b) 1 manager and 3 technician € 60,000 /person		€ 240,000	€ 247,200	€ 254,616	€ 262,254	€ 270,122	€ 278,226	€ 286,573	€ 295,170	€ 304,025	€ 313,146	€ 2,751,331
	c) Repairs and maintenance		€ 240,000	€ 247,200	€ 254,616	€ 262,254	€ 270,122	€ 278,226	€ 286,573	€ 295,170	€ 304,025	€ 313,146	€ 2,751,331
	d) Real taxes and insurance		€ 200,000	€ 206,000	€ 212,180	€ 218,545	€ 225,102	€ 231,855	€ 238,810	€ 245,975	€ 253,354	€ 260,955	€ 2,292,776
	e) Rent of power house and land		€ 600,000	€ 618,000	€ 636,540	€ 655,636	€ 675,305	€ 695,564	€ 716,431	€ 737,924	€ 760,062	€ 782,864	€ 6,878,328
	f) Total OMA		€ 1,600,000	€ 1,648,000	€ 1,697,440	€ 1,748,363	€ 1,800,814	€ 1,854,839	€ 1,910,484	€ 1,967,798	€ 2,026,832	€ 2,087,637	€ 18,342,207
3	Depreciation												
	a) over 10 years	DEXP	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 82,400,000
	b) Licence Fee (10% of OPRV line # 1d)	R	€ 4,645,080	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 70,418,160
	c) Total (line # 3a + 3b)		€ 12,885,080	€ 15,548,120	€ 15,548,120	€ 15,548,120	€ 15,548,120	€ 15,548,120	€ 15,548,120	€ 15,548,120	€ 15,548,120	€ 15,548,120	€ 152,818,160
4	Debt Service and management fee + interest	DSMF											
	a) Management Fee 10% of OPRV		€ 4,645,080	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 7,308,120	€ 70,418,160
	b) Interest @ 10% p.a.		€ 8,240,000	€ 7,416,000	€ 6,592,000	€ 5,768,000	€ 4,944,000	€ 4,120,000	€ 3,296,000	€ 2,472,000	€ 1,648,000	€ 824,000	€ 45,320,000
	c) Principal repayment (over 10 years)		€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 8,240,000	€ 82,400,000
	d) Total DSMF		€ 21,125,080	€ 22,964,120	€ 22,140,120	€ 21,316,120	€ 20,492,120	€ 19,668,120	€ 18,844,120	€ 18,020,120	€ 17,196,120	€ 16,372,120	€ 198,138,160
5	Remaining Principal	RP	€ 74,160,000	€ 65,920,000	€ 57,680,000	€ 49,440,000	€ 41,200,000	€ 32,960,000	€ 24,720,000	€ 16,480,000	€ 8,240,000	€ 0	
6	Operating Expense (OMA + DEXP + R + 4a + 4b)	OPXP	€ 27,370,160	€ 31,920,240	€ 31,145,680	€ 30,372,603	€ 29,601,054	€ 28,831,079	€ 28,062,724	€ 27,296,038	€ 26,531,072	€ 25,767,877	€ 286,898,527
7	Pre-tax Profit (OPRV - OPXP)	PTP	€ 19,080,640	€ 41,160,960	€ 41,935,520	€ 42,708,597	€ 43,480,146	€ 44,250,121	€ 45,018,476	€ 45,785,162	€ 46,550,128	€ 47,313,323	€ 417,283,073
8	Corporate Income Tax (@ 25% p.a.)	CIT	€ 4,770,160	€ 10,290,240	€ 10,483,880	€ 10,677,149	€ 10,870,036	€ 11,062,530	€ 11,254,619	€ 11,446,290	€ 11,637,532	€ 11,828,331	€ 104,320,768
9	**After Tax Profit (PTP - CIT)**	**ATP**	**€ 14,310,480**	**€ 30,870,720**	**€ 31,451,640**	**€ 32,031,448**	**€ 32,610,109**	**€ 33,187,591**	**€ 33,763,857**	**€ 34,338,871**	**€ 34,912,596**	**€ 35,484,992**	**€ 312,962,305**
10	**Cash-in-Hand after tax (ATP+DSMF)**		**€ 35,435,560**	**€ 53,834,840**	**€ 53,591,760**	**€ 53,347,568**	**€ 53,102,229**	**€ 52,855,711**	**€ 52,607,977**	**€ 52,358,991**	**€ 52,108,716**	**€ 51,857,112**	**€ 511,100,465**
11	Notes: 1) Invested capital = €82.4 Million (Total Installed Cost, except land and power house);												
	2) Electric selling price is 13.5 Euro Cents/kwh, heat selling price is 3 Euro Cents/kwh, Carbon Trading Revenue 8 Euro Cents/kwh from the second year; Blue Certificate revenue not used!												
	3) Management Fee paid to owners;												
	4) Interest rate on loan @ 10% p.a. payable to investors annually;												
	5) Principal repayed to owners in 1.8 years;												
	6) Engineering study cost is included in the above;												
	7) Cost of electromagnetic fuel is included in the 82.4 Million EURO (TIC) for 40 years (life cycle of plant)												

FREQUENTLY ASKED QUESTIONS

Re: The EBM Technology

Q1: What is the premier product of the unit (electric power, heat energy, etc)?

A1: Network electric power and 80-90 °C hot water or 80-90 °C hot air, which are suitable for heating or cooling using a heat exchanger system.

Q2: Are we speaking about a concrete unit or other units (gas engine, gas turbine, etc.);

A2: There is an EBM Unit, which operates as a driving unit producing shaft torque or operates as an electric generator when the rotor is driven by the flux. The EBM Unit produces heat in both operation and modes. The unit can have many kinds of geometrical and mechanical constructions.

Q3: Only one (1) type of unit or more than 1 type of unit can we speak of?

A3: By function, there are two types:

(a) motor, and

(b) generator;

By geometrical shape there is:

(a) The “one (1) plane” SSX type, and

(b) The “two (2) plane” “C or G” type.

Q4: The rating power of the machine is fixed or can be varied according to the demands?

A4: All of the units are able to operate between zero and maximum designed output power.

Q5: What is the voltage?

A5: It is up to the user to specify the voltage he/she wants.

Q6: What is the emission factor of the unit? What kind and how big environmental investment should be taken into consideration?

A6: Emission factor is zero. There is no toxic emission. No environmental investment is needed.

Q7: What is the voltage level when the unit works as an electric power generating unit? How can you connect it to the existing electric network?

A7: The unit works on existing voltage levels producing electric power.

Q8: What is the working safety of the units?

A8: The working safety of the EBM Units corresponds to the standard electric rotating machines, because they are built from conventional mechanical parts.

Q9: For what kind of plant operation mode are they designed (continuous, for 366 days/year or periodical)?

A9: The units work and usable in both 366 days/year and periodical operation mode.

Q10: What is the frequency of their service and the service cost?

A10: Normal yearly pre-designed preventive service with low cost. (Shut-down: 2 days/year)

Q11: Will the unit be installed as a single machine or a machine group in order to fulfill demands? This is also connected with the question of economic operation and problem of utilization of optimal consumer demand.

A11: The EBM Unit can be installed as a single machine or in a machine group.

Q12: What is the reliability of the unit in a general circumstance? Experiences in plant operation?

A12: The production price of EBM energy kWh is less than half of production price of the conventional energy generation. The reliability is excellent!

Q13: Is there a unit in Hungary?

A13: Yes.

Q14: Cost of investment in 2009?

A14. Approximately from 1000 USD/kW to 2,500 USD/kW (for small units), depending upon the size. This includes driving fuel for 40 years!

Q15: Proprietary (capital) structure in case of investment (who will be the investor, who will be the operator, who will finance, etc.)?

A15: Every kind of proprietary (capital) structure can be realized. The energy selling will mainly be made on long term basis.

Q16: How long does it take from ordering to commissioning a 5 MW_e Unit?

A16: Approximately 15 months for the 1^{st} unit, and 12 months for additional units.

Q17: What is the probability that the Technology will be commercially useful?

A17: It is already “useful”, the probability is 100 %.

Q18: What is the probability that the commercial application of this new technology will be available by a date certain, within the given budget?

A18: Will be available in the future.

Q19. What are the expected profits in USD over the life time of the new technology?

A19: The pay-back of capital is less than 4 years for small units (less than 10 MW_e) and less than 3 years for larger units. The pay-back period is expected to be shorter yet, after the automated “robotic manufacturing” begins.

Tab 9

Abbreviated

INTRODUCTION OF

GAMMA Manager Kft.

Developer of EBM (Energy By Motion)

Gamma Manager Kft.
Hungary 2040 Budaörs

Revised Spring of, 2009

Table of Contents

The EBM Power Plants are highly competitive, produce shaft power, electricity and heat with zero emission and noise.

EXECUTIVE SUMMARY

Company Ownership

Privately owned Company.

Legal Form of Business

GAMMA Manager Kft. is a duly registered and incorporated company pursuant to the laws of Hungary.

Corporate Counsel

Dr. Klára Kiss
61. Donáti u.
1011 Budapest Hungary
Ph/Fax: +36-1-350-7705
+36-1-340-9917

Accountant

Klauzula Kft (Mrs. Kókai Györgyné)
64. Bartók Béla út
1113 Budapest Hungary
Ph/Fax: +36-1-466-0751

BACKGROUND

Gamma's predecessor, Gamma Management Engineering Ltd. began its operation in 1963, in Edmonton, Alberta, Canada providing consulting, construction and expert witness services to electric power, gas pipelines and telephone utilities in Canada, the United States, South America and Europe. At peak periods Gamma Management's professional staff exceeded 400 and completed projects between 1963 and 1980 valued at several billion CAD.

Since 1986, Gamma Management's successor, GAMMA Manager Kft. (GAMMA) has worked in Toronto Canada, Houston Texas (USA), London England, and Budapest Hungary, together with partner manufacturing companies, developing the EBM Clean Energy Technology. The present office of GAMMA Manager Kft is situated in Budapest Hungary.

GAMMA began involving and training the North American management through, a subsidiary of GAMMA Manager Kft. to commence marketing operations from Toronto, Ontario.

Gamma Manager Kft. have successfully created the means to implement the distribution as well as a cohesive marketing and delivery system for the product. The research and development of this technology has taken place over the last 20 plus years

The EBM Technology has been patented in a number of countries and patent applied for in 42 countries during the development stage.
All these patent applications have been allowed to lapse. The final and useful commercial versions of the EBM Technology will be protected in two (2) ways, namely:

- Final and the useful version will be applied for in the same 42 countries, representing roughly 80% of the world's GDP, and
- By using the "COPY RIGHT" protection concept, which is for an indefinite time, without geographical or time limitations.

ENERGY BY MOTION RESEARCH PROGRAM SUMMARY

Energy by Motion (EBM) Technology is the result of a single project dealing with the manipulation of electromagnetic forces in order to create an energy source or tap unknown but theoretically postulated energy sources. The genesis of the technology pertains to the development of a system, the mechanism of which are based on a differential equation worked out by Professor L. I. Szabo (head of research of GAMMA Manager Kft. of Budapest Hungary) which demonstrates that it is possible, through certain electromagnetic manipulations, to create an energy producing system.

The hypothesis and differential equation upon which the research is based gives rise to the implication that the Laws of Thermodynamics must be modified to accommodate them. While this is not the first time that the inviolability of the Laws of Thermodynamics has been called into question, it is the first time that a specific, manageable experiment has been developed that could prove or disprove the issue. The belief is that if there is any flaw in the laws, the nature of the modification is likely to shed light on the supposed "unified field theory" that has been the central theoretical issue in mainstream physics since the 1940's and earlier.

The Laws of Thermodynamics include the law of conservation of energy, which stipulates that in any system, whether small or large, the amount of energy output from the system cannot exceed the amount of energy put into the system from external sources. Although there are exceptions to this basic rule, classic thermodynamics does not accept a situation in which a system can have more energy output than it has energy input. (The interested reader should consult the recent findings in astrophysics!)

In analyzing a particular differential equation (a mathematical formula describing physical properties in a given set of circumstances), Professor L. I. Szabo determined that the equation implied circumstances in which the law of conservation of energy did not apply. In essence, it suggested that, where an electromagnetic field has a certain mathematical "shape", the energy output from the system could be as much as fifteen times the input or more! As a result of finding this mathematical result, Professor L. I. Szabo set up in his lab a small electromagnetic rotor apparatus in early 1980's and commenced testing of aspects of the differential equation. (See the recent confirmation of Professor L. I. Szabo's findings: "How Do Space Energy Devices Work? An explanation by means of Einstein-Cartan-Evans Theory" by Dr. Horst Eckardt, of Siemens, and the Alpha Institute for Advanced Study (www.aias.us)" page 9, re:§ 12, GAMMA.)

At an early stage the apparatus was far too small to replicate the overall results sought – excess of energy output over energy input – but was sufficiently sophisticated that the equation could be confirmed in some of its key parts. From these advances in basic research, a full proof of GAMMA's hypothesis now has opened up a whole new technology for the generation of energy through electromagnetic manipulation that is capable because of its simplicity of being commercially exploited within a reasonable short time horizon.
In research into nuclear fusion and nuclear fission, it was found that small-scale experiments could give indications of scientific results, but could not produce hard data.

Experience showed that hard data of measurable size could only be produced when the energy forces used in the experimentation were very powerful. So, for example, nuclear research uses very large-scale cyclotrons and synchrotrons to move atomic particles at extremely high speeds and to create high energy levels. The same principle applies in GAMMA's electromagnetic research.

Consequently, the small-scale testing by Professor L. I. Szabo indicated directions in which to go. The next step saw the building and testing of large-scale rotor assemblies that will produce powerful electromagnetic forces in many combinations. These rotor systems, computer controlled, can be made to carry out millions of tests of minutely different electromagnetic fields - tests which not only confirm or modify the differential equation, but also add to it by telling the researchers what variables and constants in the equation impact on the results, and how.

GAMMA used a number of research teams, primarily in Canada, in Texas, USA, the United Kingdom and in Hungary where over 100 prototypes were manufactured under the direction of the team leaders, and coordinated by the chief scientist through regular interaction between the research teams.

The end result is the discovery of EBM Technology – capable of harnessing electromagnetic fields as fuel for the generation of 100% environmentally friendly highly competitive energy – and its commercialization.

DESCRIPTION OF THE TECHNOLOGY

As a result of 22 years of high-level research and development, Gamma Manager Kft. has discovered and harnessed a new source of energy - one that is commercially viable and destined to revolutionize the way of future energy production.

This technology, known as EBM, is a uniquely configured rotating machine using laminated steels and copper windings, similar in many ways to current large commercial motors or generators commonly in use today. The similarity ends, however, when one measures the combined electrical and heat output while being rotated through the EBM magnetic field. We believe this previously unknown source of energy in a magnetic field has an unusual geometry, and which behaves unlike any other known field, and allows existing EBM units to consistently produce far more than 100% excess, sellable energy!

The actual mechanism of the physics involved in this energy production is proprietary information.

EBM technology uses readily available materials and relies on existing manufacturing processes. It is non-nuclear, non-toxic, emits no noise or substances; it is 100% environmentally friendly. Even more remarkable is the fact that the energy gain is simply a function of the mass of inexpensive laminated steel in the unit. The larger the mass, the larger is the sellable extra output!

Of late, research and development has focused primarily on commercialization issues, including manufacturing and related economics. Full blueprints for the manufacture of 1.5, 5, 10 and 75 MW power plants and multiple thereof have now been completed, as well as schematics for several larger sizes up to 150 MW.

The efficiency of the units is far superior to other forms of energy conversion that it will make processes that were formerly too costly to now become commonplace:

a) replace obsolete coal and oil fired plants and nuclear plants,
b) de-salination of sea water,
c) oxygen and nitrogen manufacture for infertile land,
d) inexpensive hydrogen for fuel cell technology,
e) hydroponic production of food,
f) sewage treatment,
g) heating and cooling for various purposes,

and this list is by no means exhaustive.

MANAGEMENT, BACKGROUND AND OUTSIDE CONSULTANTS

Professor Leslie I. Szabo,
Leslie I. Szabo has over 30 years experience in the public utility and energy business in Canada, USA and Europe. Leslie I. Szabo has managed projects in excess of $30 billion US in the utility, energy, pipeline and research and development fields. Invented, managed and developed the “ENERGY – BY – MOTION” [EBM] Technology. Associate professor, mechanical engineering, Sopron University, Hungary; R & D engineer, National Coal. Board, London, England; Director of Economics, Public Utilities Board, Edmonton, Alberta; Design engineer, Dominion Bridge, Edmonton Alberta; Chairman, CEO Gamma Management and Engineering Co, Edmonton, Alberta, Canada;

Ferenc Wernsdörfer Ph.D., Chief Engineer, Gamma Manager KFT.
Over 20 years experience in electrical engineering in Europe and Asia, Head of the design engineering staff and construction of power plants;

Balint Draga, M. Sc., Director of Engineering, GAMMA Manager Kft
Over 20 years experience in the electrical power engineering in Europe; experienced in power engineering field; for several years, managed multidisciplinary staff.

Michael Day, B.A, B.Ed., President,G Energy Technology Inc.Toronto, Ont.
Duties include training and development, negotiating contracts and agreements; over 10 years experience in marketing;

Richard Gaughan, B.A. Sc., Director, G Energy Technology Inc., Toronto, Ont.
Practicing mechanical engineer with over 20 years experience; liaison with associated engineering companies; installation project manager.

Wayne Warr, Chief Financial Officer, G Energy Technology Toronto,Ont.
20 years consulting in international banking, corporate structuring and global financing; 15 years consulting in renewable energy power generation; currently sits on several boards including internet technology and power generation.

Krisztina Sulyok, M.Sc., B.Sc, Economics, Gamma Manager KFT.
Over 20 years experience in computer applications and software designs in the energy and health industries; currently engaged in the software design for the EBM engineering applications and economics.

Imre Kovacs M.Sc; Deputy Head of manufacturing GAMMA Manager Kft;
Over 20 years experience in the respective rotating electrical machinery design and manufacturing;

Sandor Sallói, Head of Laboratories, GAMMA Manager Kft over 15 years experience in LAB testing procedures;

László Nagy, Manager of construction, GAMMA Manager Kft.;

Michel Dubois, Manager of International Finance and Banking, Brussels, Belgium, GAMMA Manager Kft;

An **Associated Engineering Group** of 20 senior engineering R&D, design and manufacturing personnel and specialists from GAMMA's affiliate partner from Ukraine's largest electrical manufacturing company.

There are well over ten (10) university professors and other scientific and academic personnel under contract with GAMMA who participate in the continued commercial R&D work of EBM.