COMPOSITE EXHIBIT 46

From: fabiopenon@iol.it
Sent: Tuesday, February 23, 2016 9:58 AM
To: jmurray@industrialheat.co
Cc: tdarden@industrialheat.co; ar.123@mail.com
Subject: E-Cat reports
Attachments: attachment-1.pdf; attachment-2.pdf; attachment-3.pdf; attachment-4.pdf; attachment-5.pdf; attachment-6.pdf; attachment-7.pdf; attachment-8.pdf; attachment-9.pdf; attachment-10.pdf; attachment-11.pdf; attachment-12.pdf; attachment-13.pdf; attachment-14.pdf; attachment-15.pdf; attachment-16.pdf; attachment-17.pdf; attachment-18.pdf; attachment-19.pdf

Dear Mr. Murray,

following your request, please find attached all the reports on E-Cat MW1 Energy Plant
Reports have already been sent to Mr. Darden and Mr Rossi:
E-Cat MW1 Energy Plant in Miami: test plan, by e-mail dated 02/10/2015
E-Cat MW1 Energy Plant in Miami: plant start up, by e-mail dated 05/28/2015
E-Cat MW1 Energy Plant in Miami: first step, by e-mail dated 05/28/2015
E-Cat MW1 Energy Plant in Miami: second step, by e-mail dated 10/22/2015
E-Cat MW1 Energy Plant in Miami: second step - from 05/01/2015 to 11/30/2015, by e-mail dated 01/12/2016

Sincerely

Dr. Eng. Fabio Penon

EXHIBIT
8
2-17-17 CMS MURRAY

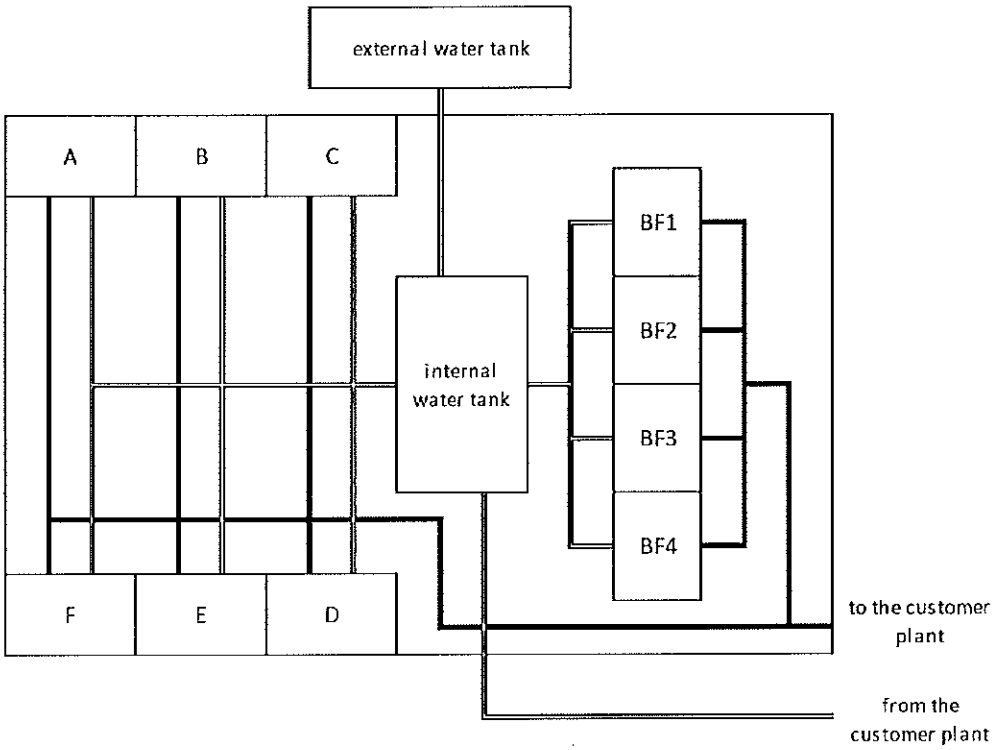
E-CAT MW1 ENERGY PLANT IN MIAMI
PLANT START UP

The ERV visited the MW1 – USA plant at Doral on February 16 -18, 2015
He verified the compliance of the plant configuration and of the measuring chains with reference documentation.
During his visit, the ERV was assisted by ing. F. Fabiani and by doc. A. Rossi.

1. Plant configuration and measuring instruments positioning

The thermohydraulic diagram of the plant is represented in figure 1.
The plant is composed of 112 units of energy generation, grouped in modules: 111 units are operational during the tests, one unit is used as spare part.
In figure 1 the configuration of every module is reported

Figure 1: Thermohydraulic diagram of the plant

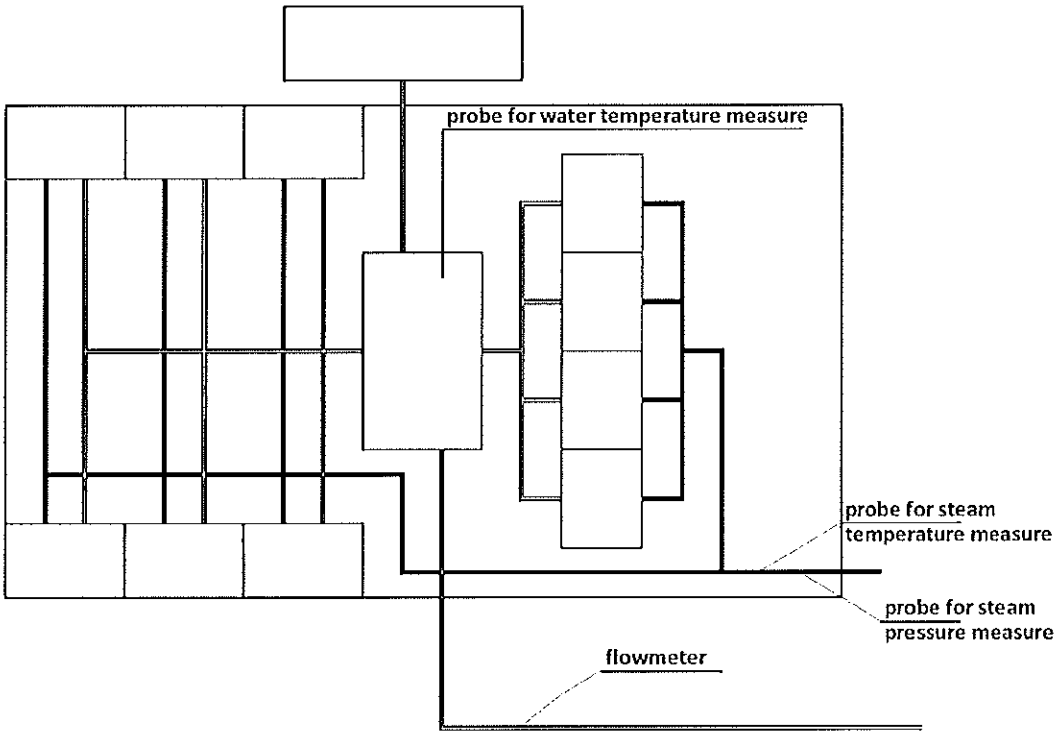


A, B, C, D, E = 9 generator units module
F = 6 generator units module
BF1 = 16 generator units module
BF2, BF3, BF4 = 15 generator units module
water line
steam line

The cooling water is conveyed by pumps in the units E-Cat, where it is heated to vaporize.
The steam is conveyed in a unique pipe of the steam line, which conveys it outside of the shelter.
The steam is then passed through the customer's installation, where it cools up to its condensation.
The water is so recycled to the internal tank in a closed loop. The water is distilled water.
The internal tank is connected with the external one.
By this way it is possible to refill refrigerant leaks during operation.
The amount of water refilled is recorded

Figure 2 shows where the instrumentation to measure thermohydraulic characteristics is positioned in the thermohydraulic circuit

Figure 2: Position of the thermohydraulic measuring instrumentation



Identification of thermohydraulic measuring instrumentation

- Flowmeter, APATOR, type MWN 130-80 NC, type n. 15305714, test report n. 01/2015, issue date 01/15/2015
- Thermocouple for water temperature measure, OMEGA, type n HSTC-TT-TI-24S-1M, id. n. T4, certificate n. M16758, issue date 02713/2015

- Digital Thermometer and Probe for steam temperature measure, OMEGA, type n. HH806AU, HTSC-TT-TI-24S-1M-SMPW-M and TC-T-NPT-U-72-SMP, s.n. 140124 (HH806AU), certificate number M16760, issue date 02/13/2015
- Probe for steam temperature measure , OMEGA, T Probe, Type TC-T-NPT-U-72, type n. T3, certificate number M16759, issue date 02/1372015
- Digital manometer, KELLER, type LEO1, type n. 43407, certificate n. RTV-MA-0141-15, issue date 03/16/2015

Annexe 1 shows wiring diagram and where the instrumentation to measure electrical characteristics is positioned in the electrical circuit

Identification electrical measuring instrumentation
- Power analyzer, PCE, type PCE-830, type n. 12080171, clamp model 6801, type n. 12020682, 12020677, 12020676, certificate n. 0518/15, issue date 01/28/2015.
- Power analyzer, PCE, type PCE-830-2, type n. 15040068, clamp model 6802, type n. 15060298, 15060299, 15060300, certificate n. 3934/15, issue date 04/20/2015.

2. Start up procedure

- Every power generation unit is filled with distilled water, coming from inner tank. until the water level is the desired.
The internal tank is filled with distilled water coming from external tank, until the water level in the inner tank is equal to the initial one.
- The hydraulic circuit is closed to see if there are leaks in the E-Cat plant or in the customer's one.
All the leaked water is refilled with water coming from external tank, until the water level in the inner tank is equal to the initial one.
- When the level of the water in the inner tank has stabilized, the hydraulic circuit is closed.
The heating resistors are switched on.
Power supply is increased by 5% every 10 minutes till the desired power level
- The water in the circuit heats up to the temperature of vaporization.
When vaporization process is finished and all the water is transformed into superheated steam, after about 2 hours, the power is reduced up to that required for the stability of this situation (stability level)
- After 24 hours, a power supply cycle is started: ten minutes power supply at stability level, ten minutes no power supply

3. Data recording

The measuring systems collect the following data every ten seconds: power supply (Kw), water temperature in the inner tank (°C), steam temperature (°C) and steam pressure (bar) in the pipe going to customer plant.
All data are recorded in a data logger
Only the mass of water (m^3), flowed through the plant, is recorded manually once in a day.

In the logbook the E-Cat each addition of distilled water from external tank to an internal tank is registered.

4. Data analysis

The analysis of the data on February 24th shows that steam pressure has been about 0,0 bar.
The minimum steam temperature has been 103,6 °C, i.e. the steam has been always superheated steam.
The maximum water temperature has been 69,1 °C
The effective flowed water has been 3600 kg/d, the reduced flowed water 3240 kg/d.
The supplied energy has been 247000 wh/d

The energy produced by E-Cat plant is given by the sum of the heat of heating of water, heat of vaporization of water and heat of superheating the steam.
$E_P = E_R + E_V + E_S$

In order to be conservative:
- it is not taken into account the heating energy of water and the heating energy of steam
- the temperature of the incoming water is always considered to be equal to the maximum value of the same, measured during the entire test day

It is possible small leaks of water to the inside of the shelter and are measurement uncertainties are present.
To take this into account the total mass of water transited during the test period is reduced by 10%.

Consequently
$E_P = E_V = \lambda \times M_W$

where
M_W = total mass of water, flowed through the system in one day, reduced by 10%.
λ = (latent energy of vaporization) = 627,5 Wh/kg at 0. bar

The absorbed energy (E_A) supplied from the public grid
In order to be conservative:
- all the supplied energy is supposed be absorbed by the 111 reactors

In reality a part of this energy feeds the pump, which conveys the water from the tank external to the reactors This energy doesn't feed the reactors

$$\text{Energy multiple (February 24, 2015)} = \frac{\text{energy produced (} E_P \text{)}}{\text{energy absorbed (} E_A \text{)}} = 82,3$$

5. Annexes

Annexe 1: Wiring diagram

Abano Terme, 2015/04/30

POIESIS srl
Dr Eng. Fabio Penon
(Nuclear Engineer)

DAILY VALUATION OF THE ENERGY MULTIPLE - FEBRUARY 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
02/23 22.30	02/24 22:30	10,29	247000	69,1	36000	32400	103,6	0.0	2,03E+07	82,3
02/24 22.30	02/25 22:30	10,29	247000	68.6	36000	32400	104,5	0.0	2,03E+07	82,3
02/25 22.30	02/26 22:30	10,42	255000	68,6	36000	32400	103,6	0.0	2,03E+07	79,7
02/26 22.30	02/27 22:30	10,5	252000	68.6	36000	32400	104,5	0.0	2,03E+07	80,7
02/27 22.30	02/28 22:30	10,59	259000	69,1	36000	32400	104,5	0.0	2,03E+07	78,5

Annex 7: DAILY VALUATION OF THE ENERGY MULTIPLE - NOVEMBER 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
10/31 22:30	11/01 22:30	11125.0	267000	71.1	36000	32400	104,4	0.0	2,03E+07	76,1
11/01 22:30	11/02 22:30	11125.0	267000	71.1	36000	32400	104,4	0.0	2,03E+07	76,1
11/02 22:30	11/03 22:30	11041,7	265000	71.1	36000	32400	104,4	0.0	2,03E+07	76,7
11/03 22:30	11/04 22:30	11208,3	269000	71.1	36000	32400	104,4	0.0	2,03E+07	75,6
11/04 22:30	11/05 22:30	11208,3	269000	71.1	36000	32400	104,3	0.0	2,03E+07	75,6
11/05 22:30	11/06 22:30	11208,3	269000	71.1	36000	32400	104,1	0.0	2,03E+07	75,6
11/06 22:30	11/07 22:30	11125.0	267000	71.1	36000	32400	104,4	0.0	2,03E+07	76,1
11/07 22:30	11/08 22:30	10958.3	263000	71.1	36000	32400	104,4	0.0	2,03E+07	77,3
11/08 22:30	11/09 22:30	11000,0	264000	71.1	39000	35100	104,4	0.0	2,20E+07	83,4
11/09 22:30	11/10 22:30	10958.3	263000	71.1	36000	32400	104,4	0.0	2,03E+07	77,3
11/10 22:30	11/11 22:30	10958.3	263000	71.1	36000	32400	104,4	0.0	2,03E+07	77,3
11/11 22:30	11/12 22:30	10916,7	262000	71.1	36000	32400	104,4	0.0	2,03E+07	77,6
11/12 22:30	11/13 22:30	11166,7	268000	71.1	36000	32400	104,4	0.0	2,03E+07	75,9
11/13 22:30	11/14 22:30	11125.0	267000	71.1	36000	32400	103,7	0.0	2,03E+07	76,1
11/14 22:30	11/15 22:30	11333.3	272000	71.1	36000	32400	104,4	0.0	2,03E+07	74,7
11/15 22:30	11/16 22:30	11333.3	272000	71.1	36000	32400	104,1	0.0	2,03E+07	74,7
11/16 22:30	11/17 22:30	11375.0	273000	71.1	36000	32400	103,6	0.0	2,03E+07	74,5

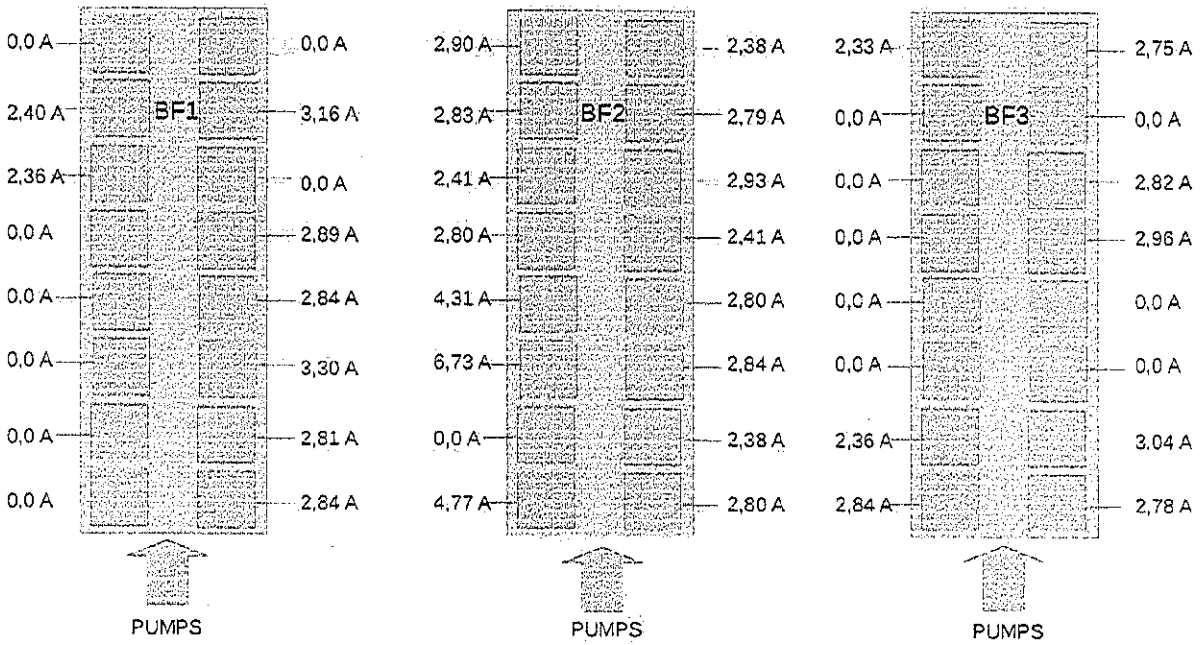
Annex 7: DAILY VALUATION OF THE ENERGY MULTIPLE - NOVEMBER 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
11/17 22.30	11/18 22:30	11083,3	266000	71,1	36000	32400	103,6	0.0	2,03E+07	76,4
11/18 22.30	11/19 22:30	11404,2	273700	71,1	36000	32400	103,6	0.0	2,03E+07	74,3
11/19 22.30	11/20 22:30	11358,3	272600	71,1	36000	32400	103,7	0.0	2,03E+07	74,6
11/20 22.30	11/21 22:30	11266,7	270400	71,1	36000	32400	103,9	0.0	2,03E+07	75,2
11/21 22.30	11/22 22:30	11262,5	270300	71,1	36000	32400	103,6	0.0	2,03E+07	75,2
11/22 22.30	11/23 22:30	11333,3	272000	71,1	36000	32400	103,6	0.0	2,03E+07	74,7
11/23 22.30	11/24 22:30	11291,7	271000	71,1	36000	32400	103,5	0.0	2,03E+07	75,0
11/24 22.30	11/25 22:30	11291,7	271000	71,1	36000	32400	103,5	0.0	2,03E+07	75,0
11/25 22.30	11/26 22:30	11166,7	268000	71,4	36000	32400	103,7	0.0	2,03E+07	75,9
11/26 22.30	11/27 22:30	11083,3	266000	71,4	36000	32400	103,9	0.0	2,03E+07	76,4
11/27 22.30	11/28 22:30	11125,0	267000	71,1	36000	32400	103,9	0.0	2,03E+07	76,1
11/28 22.30	11/29 22:30	11083,3	266000	71,1	36000	32400	103,9	0.0	2,03E+07	76,4
11/29 22.30	11/30 22:30	11083,3	266000	71,1	36000	32400	104,5	0.0	2,03E+07	76,4

MW1-USA ELECTRICAL MESUREMENT in reactors BF1,BF2,BF3

Clamp: MASTECH S.N.: MBEI 053309

Date: 10/13/2015 time: 11:00AM



STAFF present at mesurements:

Dr. Ing. Fabio Penon (ERV).....

M.Eng. Fulvio Fabiani (Designer).....

Barry West (Chief Electrical Maintenace).....

E-CAT MW1 ENERGY PLANT IN MIAMI
ENERGY MULTIPLE VALUATION: FIRST STEP

The ERV visited the MW1 – USA plant at Doral on May 18 - 20, 2015
He verified that the plant configuration and the measuring chains were not modified in relation with the ones controlled in february.
He verified also the consistency of the experimental data and calculated the energy multiple for every day, in which the plant was operating
During his visit, the ERV was assisted by ing. F. Fabiani and by doc. A. Rossi.

1. Plant configuration and measuring instruments positioning

No significant modification on the plant configuration and on the measuring chains positioning was revealed.

2. Data recording

The measuring systems collect the following data every ten seconds: power supply (Kw), water temperature in the inner tank (°C), steam temperature (°C) and steam pressure (bar) in the pipe going to customer plant.
All data are recorded in a data logger
Only the mass of water (m^3), flowed through the plant, is recorded manually once in a day at 10.30 p.m.
In the logbook the E-Cat each addition of distilled water from external tank to an internal tank is registered.

3. Data analysis

The data analysis shows that steam pressure has been about 0,0 bar throughout the period from 02/24 to 05/20.
The minimum steam temperature has been about 103 – 104 °C during the same period, i.e. the steam has been always superheated steam.

The energy produced by E-Cat plant is given by the sum of the heat of heating of water, heat of vaporization of water and heat of superheating the steam.
$E_P = E_R + E_V + E_S$

In order to be conservative:
- it has not been taken into account the heating energy of water and the heating energy of steam
- the temperature of the incoming water has been always considered to be equal to the maximum value of the same, measured during the entire test day

There has been small leaks of water to the inside of the shelter and are present measurement uncertainties

To take this into account the total mass of water transited during the test period has been reduced by 10%.

Consequently

$E_P = E_V = \lambda \times M_W$

where
Mw = total mass of water, flowed through the system in one day, reduced by 10%.
λ = (latent energy of vaporization) = 627,5 Wh/kg at 0. bar

The absorbed energy (E_A) supplied from the public grid
In order to be conservative:
- all the supplied energy is supposed be absorbed by the 111 reactors

In reality a part of this energy feeds the pump, which conveys the water from the tank external to the reactors This energy doesn't feed the reactors

$$\text{Energy multiple} = \frac{\text{energy produced } (E_P)}{\text{energy absorbed } (E_A)}$$

Throughout the period from 02/24 to 05/19 the energy multiple value has been always above 62.
During the month of February it has been fluctuating between 78 and 82, average value 80,7
During the month of March it has been fluctuating between 78 and 87, average value 80,6
During the month of April it has been fluctuating between 62 and 87, average value 80,7
In the period May 1 to 19 it has been fluctuating between 67 and 87, average value 79,9

4. Annexes

Annexe 1: Daily valuation of the energy multiple – February 2015
Annexe 2: Daily valuation of the energy multiple – March 2015
Annexe 3: Daily valuation of the energy multiple – April 2015
Annexe 4: Daily valuation of the energy multiple – May 2015

Abano Terme, 2015/05/25

POIESIS srl
Dr Eng. Fabio Penon
(Nuclear Engineer)

DAILY VALUATION OF THE ENERGY MULTIPLE - MARCH 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
02/28 22.30	03/01 22:30	10,59	254000	69,7	36000	32400	104,5	0.0	2,03E+07	80,0
04/01 22.30	04/02 22:30	10,46	251000	69,1	36000	32400	104,5	0.0	2,03E+07	81,0
03/02 22.30	03/03 22:30	9,92	238000	69,7	36000	32400	104,5	0.0	2,03E+07	85,4
03/03 22.30	03/04 22:30	10,56	253000	69,7	36000	32400	104,5	0.0	2,03E+07	80,4
03/04 22.30	03/05 22:30	10,63	255000	69,1	36000	32400	104,5	0.0	2,03E+07	79,7
03/05 22.30	03/06 22:30	10,63	255000	69,1	36000	32400	103,9	0.0	2,03E+07	79,7
03/06 22.30	03/07 22:30	10,5	252000	68,6	36000	32400	103,9	0.0	2,03E+07	80,7
03/07 22.30	03/08 22:30	10,59	259000	69,1	36000	32400	103,9	0.0	2,03E+07	78,5
03/08 22.30	03/09 22:30	10,21	245000	69,1	36000	32400	103,9	0.0	2,03E+07	83,0
03/09 22.30	03/10 22:30	10,67	256000	69,1	36000	32400	104,5	0.0	2,03E+07	79,4
03/10 22.30	03/11 22:30	10,63	255000	69,7	36000	32400	104,5	0.0	2,03E+07	79,7
03/11 22.30	03/12 22:30	10,54	253000	69,7	36000	32400	104,5	0.0	2,03E+07	80,4
03/12 22.30	03/13 22:30	10,63	255000	69,7	36000	32400	104,5	0.0	2,03E+07	79,7
03/13 22.30	03/14 22:30	10,63	255000	69,7	36000	32400	103,9	0.0	2,03E+07	79,7
03/14 22.30	03/15 22:30	10,5	252000	69,1	36000	32400	103,9	0.0	2,03E+07	80,7
03/15 22.30	03/16 22:30	10,79	259000	69,1	36000	32400	103,9	0.0	2,03E+07	78,5
03/16 22.30	03/17 22:30	10,25	246000	68,6	36000	32400	103,9	0.0	2,03E+07	82,6

DAILY VALUATION OF THE ENERGY MULTIPLE - MARCH 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
03/17 22.30	03/18 22:30	10.46	251000	68,6	36000	32400	103,9	0.0	2,03E+07	81,0
03/18 22.30	03/19 22:30	10,29	247000	68,6	38000	34200	103,9	0.0	2,15E+07	86,9
03/19 22.30	03/20 22:30	10.63	255000	68,6	36000	32400	103,9	0.0	2,03E+07	79,7
03/20 22.30	03/21 22:30	10.54	253000	68,6	36000	32400	103,9	0.0	2,03E+07	80,4
03/21 22.30	03/22 22:30	10.58	255000	68,6	36000	32400	103,9	0.0	2,03E+07	79,7
03/22 22.30	03/23 22:30	10.63	255000	68,6	36000	32400	103,9	0.0	2,03E+07	79,7
03/23 22.30	03/24 22:30	10,5	252000	69,1	36000	32400	103,9	0.0	2,03E+07	80,7
03/24 22.30	03/25 22:30	10,79	259000	69,1	36000	32400	103,9	0.0	2,03E+07	78,5
03/25 22.30	03/26 22:30	10,59	254000	68,6	36000	32400	103,9	0.0	2,03E+07	80,0
03/26 22.30	03/27 22:30	10.46	251000	66,9	36000	32400	103,9	0.0	2,03E+07	81,0
03/27 22.30	03/28 22:30	10,5	252000	66,9	36000	32400	103,9	0.0	2,03E+07	80,7
03/28 22.30	03/29 22:30	10.54	253000	68,6	36000	32400	104,5	0.0	2,03E+07	80,4
03/29 22.30	03/30 22:30	10.55	258000	69,1	36000	32400	103,9	0.0	2,03E+07	78,8
03/30 22.30	03/31 22:30	10.34	248000	68,6	36000	32400	103,9	0.0	2,03E+07	82,0

Annexe 6: DAILY VALUATION OF THE ENERGY MULTIPLE - OCTOBER 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
09/30 22:30	10/01 22:30	7625,0	183000	70,7	27000	24300	103,5	0.0	1,52E+07	83,3
10/01 22:30	10/02 22:30	10333.3	248000	70,7	36000	32400	104,4	0.0	2,03E+07	82.0
10/02 22:30	10/03 22:30	11166,7	268000	71.1	36000	32400	104,4	0.0	2,03E+07	75,9
10/03 22:30	10/04 22:30	11000,0	264000	70,7	36000	32400	104,2	0.0	2,03E+07	77,0
10/04 22:30	10/05 22:30	11041,7	265000	71,1	36000	32400	104,4	0.0	2,03E+07	76,7
10/05 22:30	10/06 22:30	11250,0	270000	70,7	36000	32400	104,2	0.0	2,03E+07	75,3
10/06 22:30	10/07 22:30	11458,3	275000	70,3	36000	32400	104	0.0	2,03E+07	73,9
10/07 22:30	10/08 22:30	11458.3	275000	70	36000	32400	103,9	0.0	2,03E+07	73,9
10/08 22:30	10/09 22:30	11250,0	270000	70	36000	32400	103,9	0.0	2,03E+07	75,3
10/09 22:30	10/10 22:30	11250,0	270000	70	36000	32400	103,9	0.0	2,03E+07	75,3
10/10 22:30	10/11 22:30	11458,3	275000	70,3	36000	32400	103,9	0.0	2,03E+07	73,9
10/11 22:30	10/12 22:30	11500,0	276000	70	36000	32400	103,9	0.0	2,03E+07	73,7
10/12 22:30	10/13 22:30	11474,2	275380	70,3	36000	32400	104	0.0	2,03E+07	73,8
10/13 22:30	10/14 22:30	11470,8	275300	70	36000	32400	104,4	0.0	2,03E+07	73,9
10/14 22:30	10/15 22:30	11483,3	275600	70,3	36000	32400	104,4	0.0	2,03E+07	73,8
10/15 22:30	10/16 22:30	11493,8	275850	70,3	36000	32400	104,4	0.0	2,03E+07	73,7
10/16 22:30	10/17 22:30	11416,7	274000	70,3	36000	32400	104,3	0.0	2,03E+07	74.2

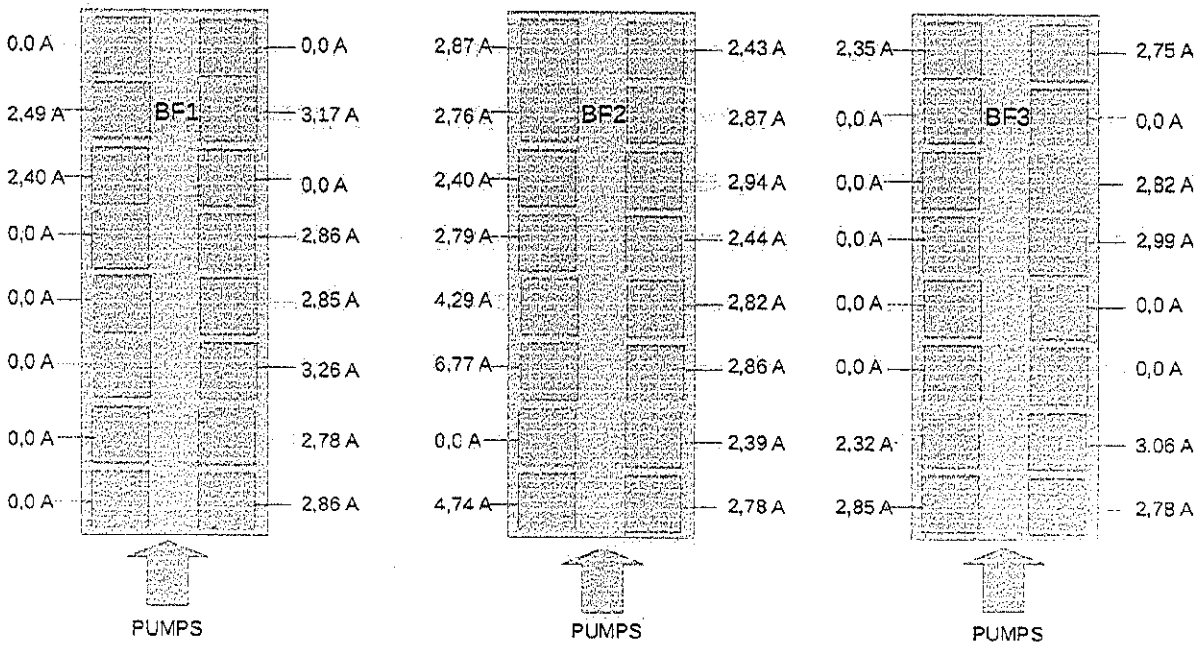
Annexe 6: DAILY VALUATION OF THE ENERGY MULTIPLE - OCTOBER 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
10/17 22.30	10/18 22:30	11458.3	275000	70,3	36000	32400	104,4	0.0	2,03E+07	73,9
10/18 22.30	10/19 22:30	11208.3	269000	70,7	36000	32400	104,2	0.0	2,03E+07	75,6
10/19 22.30	10/20 22:30	11208.3	269000	70,3	36000	32400	104	0.0	2,03E+07	75,6
10/20 22.30	10/21 22:30	11333.3	272000	70,3	36000	32400	104	0.0	2,03E+07	74,7
10/21 22.30	10/22 22:30	11333.3	272000	70,3	36000	32400	104	0.0	2,03E+07	74,7
10/22 22.30	10/23 22:30	11375.0	273000	70,3	36000	32400	104,3	0.0	2,03E+07	74,5
10/23 22.30	10/24 22:30	11375.0	273000	70,3	36000	32400	104,3	0.0	2,03E+07	74,5
10/24 22.30	10/25 22:30	11375.0	273000	70.7	36000	32400	104,4	0.0	2,03E+07	74,5
10/25 22.30	10/26 22:30	11333.3	272000	70,7	36000	32400	103,9	0.0	2,03E+07	74,7
10/26 22.30	10/27 22:30	11250.0	270000	71,1	36000	32400	104	0.0	2,03E+07	75,3
10/27 22.30	10/28 22:30	11375.0	273000	71,1	36000	32400	104,3	0.0	2,03E+07	74,5
10/28 22.30	10/29 22:30	11291.7	271000	71,1	36000	32400	104,4	0.0	2,03E+07	75,0
10/29 22.30	10/30 22:30	11250.0	270000	71,1	36000	32400	104,2	0.0	2,03E+07	75,3
10/30 22.30	10/31 22:30	11375.0	273000	70,7	36000	32400	104,4	0.0	2,03E+07	74,5

MW1-USA ELECTRICAL MESUREMENT in reactors BF1,BF2,BF3

Clamp: MASTECH S.N.: MBEI 053309

Date: 10/14/2015 time: 10:20AM



STAFF present at mesurements:

Dr. Ing. Fabio Penon (ERV).....

M.Eng. Fulvio Fabiani (Designer).....

Barry West (Chief Electrical Maintenace).....

DAILY VALUATION OF THE ENERGY MULTIPLE - APRIL 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
03/31 22.30	04/01 22:30	10,25	246000	69,1	36000	32400	103,9	0.0	2,03E+07	82,6
04/01 22.30	04/02 22:30	10,29	247000	69,1	36000	32400	103,9	0.0	2,03E+07	82,3
04/02 22.30	04/03 22:30	10,67	256000	68,6	36000	32400	103,9	0.0	2,03E+07	79,4
04/03 22.30	04/04 22:30	10,21	247000	68	36000	32400	103,9	0.0	2,03E+07	82,3
04/04 22.30	04/05 22:30	10,29	247000	68,6	36000	32400	103,9	0.0	2,03E+07	82,3
04/05 22.30	04/06 22:30	9,96	239000	69,1	36000	32400	103,9	0.0	2,03E+07	85,1
04/06 22.30	04/07 22:30	not measured	not measured	not measured	not measured	not measured	not measured	not measured	not measured	not measured
04/07 22.30	04/08 22:30	9,92	238000	69,1	36000	32400	103,9	0.0	2,03E+07	85,4
04/08 22.30	04/09 22:30	10,54	253000	69,1	28000	25200	103,9	0.0	1,58E+07	62,5
04/09 22.30	04/10 22:30	10,55	253000	69,1	38000	34200	103,9	0.0	2,15E+07	84,8
04/10 22.30	04/11 22:30	10,75	258000	69,1	36000	32400	103,9	0.0	2,03E+07	78,8
04/11 22.30	04/12 22:30	10,64	253000	68,6	37000	33300	103,9	0.0	2,09E+07	82,6
04/12 22.30	04/13 22:30	10,67	256000	68,6	36000	32400	103,9	0.0	2,03E+07	79,4
04/13 22.30	04/14 22:30	10,64	255000	69,1	36000	32400	103,9	0.0	2,03E+07	79,7
04/14 22.30	04/15 22:30	10,5	252000	68,6	36000	32400	103,9	0.0	2,03E+07	80,7
04/15 22.30	04/16 22:30	10,67	256000	69,1	36000	32400	103,9	0.0	2,03E+07	79,4
04/16 22.30	04/17 22:30	10,59	254000	68,6	36000	32400	103,9	0.0	2,03E+07	80,0

DAILY VALUATION OF THE ENERGY MULTIPLE - APRIL 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
04/17 22.30	04/18 22:30	10,46	251000	69,1	36000	32400	103,9	0.0	2,03E+07	81,0
04/18 22.30	04/19 22:30	10,54	253000	68,6	39000	35100	103,9	0.0	2,20E+07	87,1
04/19 22.30	04/20 22:30	10,67	256000	69,1	36000	32400	103,9	0.0	2,03E+07	79,4
04/20 22.30	04/21 22:30	10,46	251000	69,7	36000	32400	103,9	0.0	2,03E+07	81,0
04/21 22.30	04/22 22:30	10,67	256000	69,1	36000	32400	103,9	0.0	2,03E+07	79,4
04/22 22.30	04/23 22:30	10,67	256000	69,1	36000	32400	103,9	0.0	2,03E+07	79,4
04/23 22.30	04/24 22:30	10,59	254000	69,1	36000	32400	103,9	0.0	2,03E+07	80,0
04/24 22.30	04/25 22:30	10,75	258000	69,1	36000	32400	103,9	0.0	2,03E+07	78,8
04/25 22.30	04/26 22:30	10,54	253000	68,6	36000	32400	103,9	0.0	2,03E+07	80,4
04/26 22.30	04/27 22:30	10,55	253000	68,6	36000	32400	103,9	0.0	2,03E+07	80,4
04/27 22.30	04/28 22:30	10,34	248000	69,1	36000	32400	103,9	0.0	2,03E+07	82,0
04/28 22.30	04/29 22:30	10,25	246000	69,1	36000	32400	103,9	0.0	2,03E+07	82,6
04/29 22.30	04/30 22:30	10,29	247000	69,7	36000	32400	103,9	0.0	2,03E+07	82,3

Annexe 5: DAILY VALUATION OF THE ENERGY MULTIPLE - SEPTEMBER 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
08/31 22.30	09/01 22:30	5583,3	134000	56,4	27000	24300	103,5	0.0	1,52E+07	113,8
09/01 22.30	09/02 22:30	5625,0	135000	58	27000	24300	103,5	0.0	1,52E+07	113,0
09/02 22.30	09/03 22.30	5583,3	134000	58	27000	24300	103,5	0.0	1,52E+07	113,8
09/03 22.30	09/04 22:30	5666,7	136000	58	27000	24300	103,8	0.0	1,52E+07	112,1
09/04 22.30	09/05 22:30	5625,0	135000	58	27000	24300	103,8	0.0	1,52E+07	113,0
09/05 22.30	09/06 22:30	5708,3	137000	58	27000	24300	103,8	0.0	1,52E+07	111,3
09/06 22.30	09/07 22:30	5708,3	137000	58	27000	24300	104,2	0.0	1,52E+07	111,3
09/07 22.30	09/08 22:30	5708,3	137000	58	27000	24300	104,2	0.0	1,52E+07	111,3
09/08 22.30	09/09 22:30	5666,7	136000	58	27000	24300	104,2	0.0	1,52E+07	112,1
09/09 22.30	09/10 22:30	5625,0	135000	58	27000	24300	104,2	0.0	1,52E+07	113,0
09/10 22.30	09/11 22:30	5666,7	136000	58	27000	24300	104,2	0.0	1,52E+07	112,1
09/11 22.30	09/12 22:30	5583,3	134000	58	27000	24300	104,2	0.0	1,52E+07	113,8
09/12 22.30	09/13 22:30	5625,0	135000	58	28000	25200	104,2	0.0	1,58E+07	117,1
09/13 22.30	09/14 22:30	5666,7	136000	58	27000	24300	104,2	0.0	1,52E+07	112,1
09/14 22.30	09/15 22:30	5583,3	134000	58	27000	24300	103,8	0.0	1,52E+07	113,8
09/15 22.30	09/16 22:30	5625,0	135000	58	27000	24300	104,2	0.0	1,52E+07	113,0
09/16 22.30	09/17 22:30	5625,0	135000	58	27000	24300	104,2	0.0	1,52E+07	113,0

Annexe 5: DAILY VALUATION OF THE ENERGY MULTIPLE - SEPTEMBER 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
09/17 22:30	09/18 22:30	5625,0	135000	58	27000	24300	104,2	0.0	1,52E+07	113,0
09/18 22:30	09/19 22:30	5625,0	135000	58	27000	24300	104,2	0.0	1,52E+07	113,0
09/19 22:30	09/20 22:30	5666,7	136000	58	27000	24300	104,2	0.0	1,52E+07	112,1
09/20 22:30	09/21 22:30	5666,7	136000	58	27000	24300	104,2	0.0	1,52E+07	112,1
09/21 22:30	09/22 22:30	5625,0	135000	58	27000	24300	104,2	0.0	1,52E+07	113,0
09/22 22:30	09/23 22:30	5666,7	136000	58	27000	24300	104,2	0.0	1,52E+07	112,1
09/23 22:30	09/24 22:30	5583,3	134000	58	27000	24300	104,2	0.0	1,52E+07	113,8
09/24 22:30	09/25 22:30	5625,0	135000	58	27000	24300	104,2	0.0	1,52E+07	113,0
09/25 22:30	09/26 22:30	5666,7	136000	58	27000	24300	104,2	0.0	1,52E+07	112,1
09/26 22:30	09/27 22:30	5625,0	135000	58	27000	24300	104,2	0.0	1,52E+07	113,0
09/27 22:30	09/28 22:30	6166,7	148000	58	28000	25200	104,2	0.0	1,58E+07	106,8
09/28 22:30	09/29 22:30	6104,2	146500	58	27000	24300	104,2	0.0	1,52E+07	104,1
09/29 22:30	09/30 22:30	5687,5	136500	58	27000	24300	104,2	0.0	1,52E+07	111,7

Annexe 4: DAILY VALUATION OF THE ENERGY MULTIPLE - AUGUST 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
07/31 22.30	08/01 22:30	6291,7	151000	76,8	36000	32400	103	0.0	2,03E+07	134,6
08/01 22.30	08/02 22:30	6208,3	149000	68,6	36000	32400	103,9	0.0	2,03E+07	136,4
08/02 22.30	08/03 22.30	6125,0	147000	68,6	27000	24300	103,5	0.0	1,52E+07	103,7
08/03 22.30	08/04 22:30	5750,0	138000	68,6	27000	24300	103,5	0.0	1,52E+07	110,5
08/04 22.30	08/05 22:30	6458,3	155000	69,1	27000	24300	103,9	0.0	1,52E+07	98,4
08/05 22.30	08/06 22:30	6291,7	151000	70,3	36000	32400	103,9	0.0	2,03E+07	134,6
08/06 22.30	08/07 22:30	6291,7	151000	70,3	36000	32400	103,9	0.0	2,03E+07	134,6
08/07 22.30	08/08 22:30	5958,3	143000	70,8	36000	32400	103,5	0.0	2,03E+07	142,2
08/08 22.30	08/09 22:30	5708,3	137000	70,3	27000	24300	103,5	0.0	1,52E+07	111,3
08/09 22.30	08/10 22:30	5875,0	141000	69,7	27000	24300	103,5	0.0	1,52E+07	108,1
08/10 22.30	08/11 22:30	6125,0	147000	70,3	27000	24300	103,5	0.0	1,52E+07	103,7
08/11 22.30	08/12 22:30	6166,7	148000	69,7	29000	26100	103,5	0.0	1,64E+07	110,7
08/12 22.30	08/13 22:30	6125,0	147000	69,1	29000	26100	103,9	0.0	1,64E+07	111,4
08/13 22.30	08/14 22:30	6125,0	147000	69,7	29000	26100	103,9	0.0	1,64E+07	111,4
08/14 22.30	08/15 22:30	6125,0	147000	69,7	29000	26100	103,9	0.0	1,64E+07	111,4
08/15 22.30	08/16 22:30	6083,3	146000	69,7	29000	26100	103,5	0.0	1,64E+07	112,2
08/16 22.30	08/17 22:30	6125,0	147000	69,7	29000	26100	103,5	0.0	1,64E+07	111,4

Annexe 4: DAILY VALUATION OF THE ENERGY MULTIPLE - AUGUST 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
08/17 22.30	08/18 22:30	5958,3	143000	69,7	29000	26100	103,5	0.0	1,64E+07	114,5
08/18 22.30	08/19 22:30	5666,7	136000	66,7	29000	26100	103,5	0.0	1,64E+07	120,4
08/19 22.30	08/20 22:30	5625,0	135000	65,9	29000	26100	103	0.0	1,64E+07	121,3
08/20 22.30	08/21 22:30	5625,0	135000	62	29000	26100	103,9	0.0	1,64E+07	121,3
08/21 22.30	08/22 22:30	5666,7	136000	60,9	27000	24300	103,9	0.0	1,52E+07	112,1
08/22 22.30	08/23 22:30	5708,3	137000	65,9	27000	24300	103,9	0.0	1,52E+07	111,3
08/23 22.30	08/24 22:30	5666,7	136000	65,9	27000	24300	103,9	0.0	1,52E+07	112,1
08/24 22.30	08/25 22:30	5666,7	136000	60,9	27000	24300	103,5	0.0	1,52E+07	112,1
08/25 22.30	08/26 22:30	5625,0	135000	60,2	27000	24300	103,5	0.0	1,52E+07	113,0
08/26 22.30	08/27 22:30	5625,0	135000	59,8	27000	24300	103,9	0.0	1,52E+07	113,0
08/27 22.30	08/28 22:30	5583,3	134000	59.0	27000	24300	103,9	0.0	1,52E+07	113,8
08/28 22.30	08/29 22:30	5583,3	134000	56,8	27000	24300	103,5	0.0	1,52E+07	113,8
08/29 22.30	08/30 22:30	5625,0	135000	62,8	27000	24300	103,5	0.0	1,52E+07	113,0
08/30 22.30	08/31 22:30	5625,0	135000	58,5	27000	24300	103,9	0.0	1,52E+07	113,0

E-CAT MW1 ENERGY PLANT IN MIAMI
ENERGY MULTIPLE VALUATION: SECOND STEP

The ERV visited the MW1 – USA plant at Doral on October 12 - 14, 2015.
The visit was without notice, in accordance with the e-mail dated 02/20/2015
He verified that the plant configuration and the measuring chains were not modified in relation with the ones controlled in february and in may
He verified also the consistency of the experimental data and made a first approximation calculation of the energy multiple during his visit.
He checked the current absorption in the reactors BF1, BF2 and BF3.
During his visit, the ERV was assisted by M. Eng. F. Fabiani (IH), Eng. B. West (IH) and by doc. A. Rossi (LC).

1. Plant configuration and measuring instruments positioning

No significant modification on the plant configuration and on the measuring chains positioning was revealed.

2. Data recording

The measuring systems collect the following data every ten seconds: power supply (Kw), water temperature in the inner tank (°C), steam temperature (°C) and steam pressure (bar) in the pipe going to customer plant.
All data are recorded in a data logger
Only the mass of water (m^3), flowed through the plant, is recorded manually once in a day at 10.30 p.m.
In the logbook the E-Cat each addition of distilled water from external tank to an internal tank is registered.
On 10/13/2015 and 10/14/2015 a control of absorption of instantaneous current in the reactors BF1, BF1 and BF3 has been performed manually

3. Data analysis

The data analysis shows that steam pressure has been about 0,0 bar throughout the period 10/12 – 10/14.
The steam temperature, manually checked, has been about 103 – 104 °C during the same period, i.e. the steam has been always superheated steam.
The water temperature, manually checked, has been between 60 – 80 °C during the same period.

The energy produced by E-Cat plant is given by the sum of the heat of heating of water, heat of vaporization of water and heat of superheating the steam.
$E_P = E_R + E_V + E_S$

Assuming the same conservative criteria for the calculations made in the past, i.e.
- it has not been taken into account the heating energy of water and the heating energy of steam
- the temperature of the incoming water has been always considered to be equal to the maximum value of the same, measured during the entire test day
- the total mass of water transited during the test period has been reduced by 10%., to take into account the small leaks of water to the inside of the shelter and the measurement uncertainties

the energy produced by the E-Cat plant is:

$E_P = E_V = \lambda \times M_W$

where

M_W = total mass of water, flowed through the system in one day, reduced by 10%.

λ = (latent energy of vaporization) = 627,5 Wh/kg at 0. bar

In order to be conservative all the absorbed energy (E_A) has supposed be absorbed by the 111 reactors

In reality a part of this energy feeds the pump, which conveys the water from the tank external to the reactors This energy doesn't feed the reactors

$$\text{Energy multiple} = \frac{\text{energy produced } (E_P)}{\text{energy absorbed } (E_A)}$$

The energy multiple value has been always about 74.

4. Annexes

Annexe 1: MW1-USA Electrical measurement in reactors BF1, BF2, BF3. 10/13/2015
Annexe 2: MW1-USA Electrical measurement in reactors BF1, BF2, BF3. 10/14/2015

Abano Terme, 10/19/2015

POIESIS srl
M. Eng. Fabio Penon
(Nuclear Engineer)

Annexe 3: DAILY VALUATION OF THE ENERGY MULTIPLE - JULY 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
06/30 22:30	07/01 22:30	8500,0	204000	75,3	36000	32400	103,9	0.0	2,03E+07	99,7
07/01 22:30	07/02 22:30	8541,7	205000	69,1	36000	32400	103,9	0.0	2,03E+07	99,2
07/02 22:30	07/03 22:30	8583,3	206000	71,4	36000	32400	103,9	0.0	2,03E+07	98,7
07/03 22:30	07/04 22:30	8458,3	203000	73,7	36000	32400	103,9	0.0	2,03E+07	100,2
07/04 22:30	07/05 22:30	8333,3	200000	75,3	36000	32400	104,4	0.0	2,03E+07	101,7
07/05 22:30	07/06 22:30	8500,0	204000	70,3	36000	32400	103,3	0.0	2,03E+07	99,7
07/06 22:30	07/07 22:30	8416,7	202000	70,3	36000	32400	103,3	0.0	2,03E+07	100,6
07/07 22:30	07/08 22:30	8416,7	202000	70,3	36000	32400	102,8	0.0	2,03E+07	100,6
07/08 22:30	07/09 22:30	8500,0	204000	70,3	36000	32400	103,9	0.0	2,03E+07	99,7
07/09 22:30	07/10 22:30	8500,0	204000	73,1	36000	32400	103,9	0.0	2,03E+07	99,7
07/10 22:30	07/11 22:30	8333,3	200000	75,3	36000	32400	103,9	0.0	2,03E+07	101,7
07/11 22:30	07/12 22:30	8458,3	203000	71,4	36000	32400	104,4	0.0	2,03E+07	100,2
07/12 22:30	07/13 22:30	8458,3	203000	70,8	32000	28800	104,3	0.0	1,81E+07	89,0
07/13 22:30	07/14 22:30	8500,0	204000	75,3	36000	32400	103,9	0.0	2,03E+07	99,7
07/14 22:30	07/15 22:30	8708,3	209000	75,3	36000	32400	103,9	0.0	2,03E+07	97,3
07/15 22:30	07/16 22:30	8666,7	208000	70,3	36000	32400	103,5	0.0	2,03E+07	97,7
07/16 22:30	07/17 22:30	8708,3	209000	67,43	36000	32400	103,5	0.0	2,03E+07	97,3

Annexe 3: DAILY VALUATION OF THE ENERGY MULTIPLE - JULY 2015

		average power supply (w)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam t min (°C)	steam pressure	produced energy (wh)	COP
07/17 22.30	07/18 22:30	8708,3	209000	69,7	36000	32400	103,9	0.0	2,03E+07	97,3
07/18 22.30	07/19 22:30	8708,3	209000	75,3	36000	32400	103,5	0.0	2,03E+07	97,3
07/19 22.30	07/20 22:30	8666,7	208000	73,7	36000	32400	103,9	0.0	2,03E+07	97,7
07/20 22.30	07/21 22:30	8625,0	207000	69,7	36000	32400	103,9	0.0	2,03E+07	98,2
07/21 22.30	07/22 22:30	8625,0	207000	81,5	36000	32400	103,9	0.0	2,03E+07	98,2
07/22 22.30	07/23 22:30	8541,7	205000	78,4	36000	32400	103,5	0.0	2,03E+07	99,2
07/23 22.30	07/24 22:30	8583,3	206000	78,4	36000	32400	103,9	0.0	2,03E+07	98,7
07/24 22.30	07/25 22:30	8500,0	204000	76,8	36000	32400	103,9	0.0	2,03E+07	99,7
07/25 22.30	07/26 22:30	8500,0	204000	78,4	36000	32400	103,5	0.0	2,03E+07	99,7
07/26 22.30	07/27 22:30	9125,0	219000	78,4	36000	32400	103,5	0.0	2,03E+07	92,8
07/27 22.30	07/28 22:30	6083,3	146000	81,5	36000	32400	103,9	0.0	2,03E+07	139,3
07/28 22.30	07/29 22:30	6458,3	155000	75,3	31000	27900	103,5	0.0	1,75E+07	113,0
07/29 22.30	07/30 22:30	5958,3	143000	83,1	27000	24300	103,5	0.0	1,52E+07	106,6
07/30 22.30	07/31 22:30	6375,0	153000	80	36000	32400	103,9	0.0	2,03E+07	132,9

Ing. Fabio Penon

E-CAT MW1 ENERGY PLANT IN MIAMI
ENERGY MULTIPLE VALUATION
FROM 05/01/2015 TO 11/30/2015

The ERV visited the MW1 – USA plant at Doral on October 12 - 14, 2015.
The results have been already presented in the document 'E-Cat MW1 Energy Plant in Miami. Energy multiple valuation, second step', dated 10/19/2015
This report presents the 'energy multiple' value, calculated during the period 05/01/2015 – 11/30/2015

The Energy Multiple values have been calculated, assuming the same conservative criteria for the calculations made in the past, i.e.
- it has not been taken into account the heating energy of water and the heating energy of steam
- the temperature of the incoming water has been always considered to be equal to the maximum value of the same, measured during the entire test day
- the temperature of the outcoming steam has been always considered to be equal to the minimum value of the same, measured during the entire test day
- the total mass of water transited during the test period has been reduced by 10%., to take into account the small leaks of water to the inside of the shelter and the measurement uncertainties

The energy produced by the E-Cat plant is:
$E_P = E_V = \lambda \times M_W$
where
M_W = total mass of water, flowed through the system in one day, reduced by 10%.
λ = (latent energy of vaporization) = 627,5 Wh/kg at 0. bar

In order to be conservative all the absorbed energy (E_A) has supposed be absorbed by the 111 reactors
In reality a part of this energy feeds the pump, which conveys the water from the tank external to the reactors This energy doesn't feed the reactors

$$\text{Energy multiple} = \frac{\text{energy produced } (E_P)}{\text{energy absorbed } (E_A)}$$

Annexes

Annexe 1: Daily valuation of the energy multiple – May 2015
Annexe 2: Daily valuation of the energy multiple – June 2015
Annexe 3: Daily valuation of the energy multiple – July 2015
Annexe 4: Daily valuation of the energy multiple – August 2015
Annexe 5 Daily valuation of the energy multiple – September 2015
Annexe 6: Daily valuation of the energy multiple – October 2015
Annexe 7: Daily valuation of the energy multiple – November 2015

Abano Terme, 07/01/2016

POIESIS srl
M. Eng. Fabio Penon
(Nuclear Engineer)

Annexe 2: DAILY VALUATION OF THE ENERGY MULTIPLE - JUNE 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
05/31 22.30	06/01 22:30	7791,7	187000	69,1	22000	19800	104,5	0.0	1,24E+07	66,4
06/01 22.30	06/02 22:30	9208,3	221000	71,4	27000	24300	104,5	0.0	1,52E+07	69,0
06/02 22.30	06/03 22:30	8458,3	203000	69,7	26000	23400	104,5	0.0	1,47E+07	72,3
06/03 22.30	06/04 22:30	6750,0	162000	71,4	27000	24300	104,5	0.0	1,52E+07	94,1
06/04 22.30	06/05 22:30	7750,0	186000	70,3	27000	24300	103,9	0.0	1,52E+07	82,0
06/05 22.30	06/06 22:30	9750,0	234000	70,3	36000	32400	104,5	0.0	2,03E+07	86,9
06/06 22.30	06/07 22:30	8916,7	214000	70,3	36000	32400	104,5	0.0	2,03E+07	95,0
06/07 22.30	06/08 22:30	8125,0	195000	70,8	36000	32400	103,4	0.0	2,03E+07	104,3
06/08 22.30	06/09 22:30	8000,0	192000	70,3	27000	24300	103,4	0.0	1,52E+07	79,4
06/09 22.30	06/10 22:30	7958,3	191000	70,3	18000	16200	103,9	0.0	1,02E+07	53,2
06/10 22.30	06/11 22:30	8083,3	194000	69,1	36000	32400	103,4	0.0	2,03E+07	104,8
06/11 22.30	06/12 22:30	8375,0	201000	70,3	27000	24300	103,9	0.0	1,52E+07	75,9
06/12 22.30	06/13 22:30	8875,0	213000	69,7	27000	24300	104,5	0.0	1,52E+07	71,6
06/13 22.30	06/14 22:30	8208,3	197000	71,4	27000	24300	103,9	0.0	1,52E+07	77,4
06/14 22.30	06/15 22:30	8541,7	205000	69,7	33000	29700	103,9	0.0	1,86E+07	90,9
06/15 22.30	06/16 22:30	8458,3	203000	70,3	36000	32400	103,9	0.0	2,03E+07	100,2
06/16 22.30	06/17 22:30	8416,7	202000	70,3	36000	32400	103,9	0.0	2,03E+07	100,6

Annexe 2: DAILY VALUATION OF THE ENERGY MULTIPLE - JUNE 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
06/17 22.30	06/18 22:30	8416,7	202000	69,1	36000	32400	103,9	0.0	2,03E+07	100,6
06/18 22.30	06/19 22:30	8416,7	202000	69,1	36000	32400	103,9	0.0	2,03E+07	100,6
06/19 22.30	06/20 22:30	8416,7	202000	68,6	36000	32400	103,9	0.0	2,03E+07	100,6
06/20 22.30	06/21 22:30	8416,7	202000	69,1	36000	32400	103,9	0.0	2,03E+07	100,6
06/21 22.30	06/22 22:30	8375,0	201000	68,5	34000	30600	103,9	0.0	1,92E+07	95,5
06/22 22.30	06/23 22:30	8416,7	202000	69,1	36000	32400	103,9	0.0	2,03E+07	100,6
06/23 22.30	06/24 22:30	8500,0	204000	69,1	36000	32400	103,9	0.0	2,03E+07	99,7
06/24 22.30	06/25 22:30	8458,3	203000	69,2	36000	32400	104,5	0.0	2,03E+07	100,2
06/25 22.30	06/26 22:30	8500,0	204000	69,7	36000	32400	104,5	0.0	2,03E+07	99,7
06/26 22.30	06/27 22:30	8583,3	206000	70,2	26000	23400	104,5	0.0	1,47E+07	71,3
06/27 22.30	06/28 22:30	8750,0	210000	70,8	36000	32400	104,5	0.0	2,03E+07	96,8
06/28 22.30	06/29 22:30	8750,0	210000	68,5	36000	32400	104,5	0.0	2,03E+07	96,8
06/29 22.30	06/30 22:30	8541,7	205000	69,1	36000	32400	103,9	0.0	2,03E+07	99,2

DAILY VALUATION OF THE ENERGY MULTIPLE - MAY 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
04/30 22.30	05/01 22:30	10,25	246000	70,8	36000	32400	103,4	0.0	2,03E+07	82,6
05/01 22.30	05/02 22:30	10,29	247000	69,1	36000	32400	103,9	0.0	2,03E+07	82,3
05/02 22.30	05/03 22:30	10,29	247000	71,4	36000	32400	103,9	0.0	2,03E+07	82,3
05/03 22.30	05/04 22:30	9,96	239000	69,7	35000	31500	103,9	0.0	1,98E+07	82,7
05/04 22.30	05/05 22:30	10,67	256000	71,4	36000	32400	103,4	0.0	2,03E+07	79,4
05/05 22.30	05/06 22:30	10,29	247000	70,3	36000	32400	103,4	0.0	2,03E+07	82,3
05/06 22.30	05/07 22:30	10,21	245000	70,3	35000	31500	103,9	0.0	1,98E+07	80,7
05/07 22.30	05/08 22:30	10,12	243000	70,3	36000	32400	103,9	0.0	2,03E+07	83,7
05/08 22.30	05/09 22:30	10,25	246000	70,8	36000	32400	104,5	0.0	2,03E+07	82,6
05/09 22.30	05/10 22:30	9,96	239000	73,1	36000	32400	104,5	0.0	2,03E+07	85,1
05/10 22.30	05/11 22:30	10,33	248000	70,3	32000	28800	104,5	0.0	1,81E+07	72,9
05/11 22.30	05/12 22:30	10,33	244000	71,4	34000	30600	104,5	0.0	1,92E+07	78,7
05/12 22.30	05/13 22:30	10,29	245000	70,8	35000	31500	104,5	0.0	1,98E+07	80,7
05/13 22.30	05/14 22:30	10,25	246000	70,3	36000	32400	104,5	0.0	2,03E+07	82,6
05/14 22.30	05/15 22:30	10,21	245000	70,8	34000	30600	104,5	0.0	1,92E+07	78,4
05/15 22.30	05/16 22:30	8,67	208000	70,3	29000	26100	104,5	0.0	1,64E+07	78,7
05/16 22.30	05/17 22:30	10,28	247000	69,1	38000	34200	104,5	0.0	2,15E+07	86,9

DAILY VALUATION OF THE ENERGY MULTIPLE - MAY 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
05/17 22.30	05/18 22:30	10	240000	70,3	29000	26100	104,5	0.0	1,64E+07	68,2
05/18 22.30	05/19 22:30	10,39	249600	70,8	30000	27000	104,5	0.0	1,69E+07	67,9

Annexe 1: DAILY VALUATION OF THE ENERGY MULTIPLE - MAY 2015

		average power supply (Kw)	supplied energy wh/d	tank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
04/30 22:30	05/01 22:30	10,25	246000	70,8	36000	32400	103,4	0.0	2,03E+07	82,6
05/01 22:30	05/02 22:30	10,29	247000	69,1	36000	32400	103,9	0.0	2,03E+07	82,3
05/02 22:30	05/03 22:30	10,29	247000	71,4	36000	32400	103,9	0.0	2,03E+07	82,3
05/03 22:30	05/04 22:30	9,96	239000	69,7	35000	31500	103,9	0.0	1,98E+07	82,7
05/04 22:30	05/05 22:30	10,67	256000	71,4	36000	32400	103,4	0.0	2,03E+07	79,4
05/05 22:30	05/06 22:30	10,29	247000	70,3	36000	32400	103,4	0.0	2,03E+07	82,3
05/06 22:30	05/07 22:30	10,21	245000	70,3	35000	31500	103,9	0.0	1,98E+07	80,7
05/07 22:30	05/08 22:30	10,12	243000	70,3	36000	32400	103,9	0.0	2,03E+07	83,7
05/08 22:30	05/09 22:30	10,25	246000	70,8	36000	32400	104,5	0.0	2,03E+07	82,6
05/09 22:30	05/10 22:30	9,96	239000	73,1	36000	32400	104,5	0.0	2,03E+07	85,1
05/10 22:30	05/11 22:30	10,33	248000	70,3	32000	28800	104,5	0.0	1,81E+07	72,9
05/11 22:30	05/12 22:30	10,33	244000	71,4	34000	30600	104,5	0.0	1,92E+07	78,7
05/12 22:30	05/13 22:30	10,29	245000	70,8	35000	31500	104,5	0.0	1,98E+07	80,7
05/13 22:30	05/14 22:30	10,25	246000	70,3	36000	32400	104,5	0.0	2,03E+07	82,6
05/14 22:30	05/15 22:30	10,21	245000	70,8	34000	30600	104,5	0.0	1,92E+07	78,4
05/15 22:30	05/16 22:30	8,67	208000	70,3	29000	26100	104,5	0.0	1,64E+07	78,7
05/16 22:30	05/17 22:30	10,28	247000	69,1	38000	34200	104,5	0.0	2,15E+07	86,9

Annexe 1: DAILY VALUATION OF THE ENERGY MULTIPLE - MAY 2015

		average power supply (Kw)	supplied energy wh/d	lank water T max (°C)	effective flowed water(Kg/d)	reduced flowed water (kg/d)	steam T min (°C)	steam pressure	produced energy (wh)	COP
05/17 22.30	05/18 22:30	10	240000	70,3	29000	26100	104,5	0.0	1,64E+07	68,2
05/18 22.30	05/19 22:30	10,39	249600	70,8	30000	27000	104,5	0.0	1,69E+07	67,9
05/19 22.30	05/20 22:30	10,22	245100	70,3	36000	32400	104.5	0.0	2,03E+07	82,9
05/20 22.30	05/21 22:30	10,09	242100	69,7	36000	32400	105,1	0.0	2,03E+07	84,0
05/21 22.30	05/22 22:30	10,17	244000	81,5	38000	34200	105,1	0.0	2,15E+07	88,0
05/22 22.30	05/23 22:30	10,22	245200	78,4	34000	30600	104,5	0.0	1,92E+07	78,3
05/23 22.30	05/24 22:30	10,46	251000	78,4	36000	32400	104,5	0.0	2,03E+07	81,0
05/24 22.30	05/25 22:30	10,29	247000	76,8	36000	32400	104,5	0.0	2,03E+07	82,3
05/25 22.30	05/26 22:30	10,38	249000	78,4	36000	32400	104,5	0.0	2,03E+07	81,7
05/26 22.30	05/27 22:30	10,59	254000	80	36000	32400	104,5	0.0	2,03E+07	80,0
05/27 22.30	05/28 22:30	9,75	234000	81,5	36000	32400	104,5	0.0	2,03E+07	86,9
05/28 22.30	05/29 22:30	10,38	249000	80	36000	32400	104,5	0.0	2,03E+07	81,7
05/29 22.30	05/30 22:30	9,17	220000	83	36000	32400	104,5	0.0	2,03E+07	92,4
05/30 22.30	05/31 22:30	9,67	232000	80	36000	32400	104,5	0.0	2,03E+07	87,6

E-CAT MW1 ENERGY PLANT IN MIAMI
TESTS PLAN

1. Plant description

The MW1-USA plant under test consists of 115 power generation units, grouped in modules. Only 111 units will be operational during the tests: Four units will be used as spare parts.
Every unit absorbs a power of about 1.1 kW – 2.5 kW

Each unit consists of a reaction chamber, where the nickel powder reacts with the hydrogen in the presence of a catalyst.
Electric heaters heath the reaction chamber and by this way trigger the reaction between nickel and hydrogen.
The power panel regulates the power supply of the electric heaters

The cooling water is contained in a tank, placed inside the plant, that receives the water from an external plant.
It is conveyed by pumps in the units E-Cat, where it is heated to vaporize. The steam is collected in one tube of the steam line, which conveys it to the outside of the shelter.
The steam is then passed through the customer's facility, where it cools up to its condensation.
The water is so recycled to the internal tank in a closed loop. The water is distilled water.
The external tank is connected with the internal tank, by a water line and a floating valve, so that the level of water inside the internal tank is maintained constant. The water flows from the external tank into the internal tank by gravity.

The heating elements of the E-Cat units, the pumps for the water, the internal services to the shelter and the control panel are powered by the public grid

In the plant some measuring instruments are installed:
- flowmeter for measuring the flow rate of cooling water inlet into the shelter.
It is located along the line of return of the water, between the plant of the Customer and the 1 MW E-Cat
- temperature probe for measuring the cooling water temperature at the inlet of the shelter.
It is located in the internal water tank, containing cooling distilled water
- temperature probe for measuring steam temperature at the outlet of the shelter.
It is located along the steam pipe at the outside of the shelter
- pressure probe for measuring steam pressure at the outlet of the shelter.
It is located along the steam pipe at the outside of the shelter
- power analyzer for measuring the power supply.
It is located along the electric power line before the E-Cat

2. Test set up

2.1 List of components

n. 60 Water pump (Prominent)
n. 115 E-Cat units
n. 1 Water pump
n. 1 Internal Water tank (0.2 C.M.)
n. 1 Auxiliary external water tank

2.2 Measurement instrumentation

- Flowmeter Test report n. 01/2015, dated 2015/01/15
- Power analyzer PCE 830 Calibration certificate n. 0518/15, dated 2015/01/28
- Probe for water temperature measurement HSTC - TT - TI – 24S.
- Probe for steam temperature measurement TU - T - NPT - U 72
- Probe for steam pressure measurement PX 309-100A5V
- Multifunction calibrator

The measurement chain of temperature a will be calibrated by the thermometer HSTC-TT-TI-24S-1M-SMPW-M

3. Calculation of the energy mutiple

6.1 Calculation of the energy produced (E_P)

The energy produced by 111 power generator units is given by the sum of the heat of heating of water, heat of vaporization of water and heat of superheating the steam.

$E_p = E_R + E_v + E_s$

E_R (energy of heating of water up to100 °C) = $M_w \times C_{sw} \times (T_{vw} - T_{iw})$
where
M_w = mass of water vaporized during the whole test, coming from tank
T_{iw} = inlet temperature of the water, coming from tank
C_{sw}= specific heat of water = 1,14 Wh/(kg°K)
T_{vw} = vaporization temperature of the water = 100 °C

E_v = (energy of vaporization of water) = $\lambda \times M_w$
λ = (latent energy of vaporization) = 627,5 Wh/kg

Es (heating energy of steam) = M_s x C_{ps} x (T_{os} – T_{ww})

M_s = mass of steam produced during the whole test

C_{ps} =specific heat of steam at constant pressure = 0,542 Wh/kg

T_{os} = outlet temperature of the steam

T_{ww} = vaporization temperature of the water

The values refer to the atmospheric pressure

In order to be conservative:
- it will be not taken into account the heating energy of steam
- the temperature of the incoming water will be always considered to be equal to the maximum value of the same measured during the entire test day

It will be possible small leaks of water to the inside of the shelter and are present measurement uncertainties
To take this into account the total mass of water transited during the test period will be reduced by 10%..

3.2 Calculation of the energy absorbed (E_a)

The energy is supplied from the public grid
In order to be conservative:
- all the supplied energy is supposed be absorbed by the 111 reactors

In reality a part of this energy feeds the pump, which conveys the water from the tank external to the reactors This energy doesn't feed the reactors

3.3 Calculation of the 'energy multiple'

$$\text{Energy multiple} = \frac{\text{energy produced } (E_P)}{\text{energy absorbed } (E_A)}$$

4. Test protocol

Before testing Leonardo Corporation will implement the system in accordance with reference documentation
The ERV will provide the measuring devices: probe for measuring water inlet temperature, probe to measure outlet steam temperature, probe to measure the outlet steam pressure, inlet water flowmeter, electrical power analyser
Leonardo Corporation will install measuring devices with reference documentation

Before the plant start up the ERV will verify the compliance of the plant configuration and of the measuring chains with reference documentation.
He will carry out a trial run
Leonardo Corporation will start the system

The ERV will then follow the system start-up to reach the operating conditions and at least the next 24 hours of operation

According to data collected after the first 24 hours of operation, he will make an initial assessment of the 'Energy Multiple' and he will prepare the report

During the test will be detected the electrical power supplied, the temperature of the inlet water, the temperature and the pressure of the outlet steam, the flow rate of inlet water.

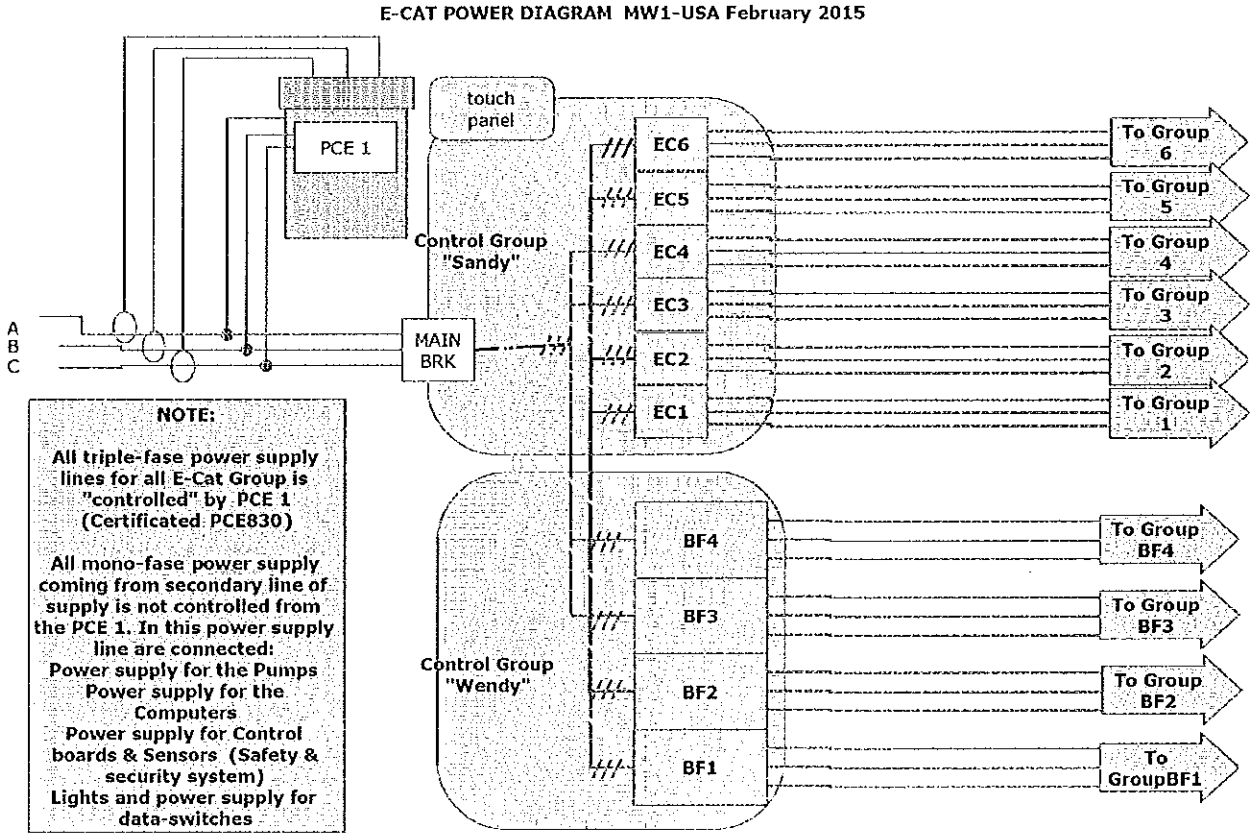
At 00.00 of every day of the test, the measurement system will calculate the mass of water that has passed through the E-Cat and the total energy supplied to the E-Cat.
Every event that occurs from the start until the close of the tests, after 350 days of operation, will be recorded in the logbook by Leonardo Corporation.

During the 350 days of operation, the ERV will visits to the plant with a frequency approximately four months in order to verify the configuration of the system and the measuring chains and make evaluations of Multiple Energy

At the end of the 350 days of operation the ERV will follow the shutdown of the plant
At the conclusion of the test the ERV will produce a final report, showing the results

Abano Terme, 2015/02/09

POIESIS srl
Fabio Penon M.E.


E-CAT POWER DIAGRAM MW1-USA February 2015
touch panel
PCE 1
Control Group "Sandy"
MAIN BRK
A
B
C
EC6
EC5
EC4
EC3
EC2
EC1
To Group 6
To Group 5
To Group 4
To Group 3
To Group 2
To Group 1
Control Group "Wendy"
BF4
BF3
BF2
BF1
To Group BF4
To Group BF3
To Group BF2
To GroupBF1
NOTE:
All triple-fase power supply lines for all E-Cat Group is "controlled" by PCE 1 (Certificated PCE830)
All mono-fase power supply coming from secondary line of supply is not controlled from the PCE 1. In this power supply line are connected:
Power supply for the Pumps
Power supply for the Computers
Power supply for Control boards & Sensors (Safety & security system)
Lights and power supply for data-switches

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF FLORIDA

ANDREA ROSSI and LEONARDO CORPORATION,

Plaintiffs,

v.

THOMAS DARDEN; JOHN T. VAUGHN, INDUSTRIAL HEAT, LLC; IPH INTERNATIONAL B.V.; and CHEROKEE INVESTMENT PARTNERS, LLC,

Defendants.

CASE NO. 1:16-cv-21199-CMA

EXPERT DISCLOSURE OF JOSEPH A. MURRAY

INDUSTRIAL HEAT, LLC and IPH INTERNATIONAL B.V.,

Counter-Plaintiffs,

v.

ANDREA ROSSI and LEONARDO CORPORATION,

Counter-Defendants,

and

J.M. PRODUCTS, INC.; HENRY JOHNSON; FABIO PENON; UNITED STATES QUANTUM LEAP, LLC; FULVIO FABIANI; and JAMES BASS,

Third-Party Defendants.

EXPERT DISCLOSURE OF JOSEPH A. MURRAY

Defendants THOMAS DARDEN, JOHN T. VAUGHN, INDUSTRIAL HEAT, LLC ("IH"), IPH INTERNATIONAL B.V. ("IPH"), and CHEROKEE INVESTMENT PARTNERS, LLC (collectively, "Defendants"), pursuant to Fed. R. Civ. P. 26 (a)(2)(C), hereby submit the expert disclosure of Joseph A. Murray:

I. INTRODUCTION

Joseph A. Murray, former Vice President of Engineering for Industrial Heat, LLC, shall be testifying as to his opinions concerning the accuracy and reliability of the report by Fabio Penon of the E-Cat plant as well as the performance of the E-cat plant itself.

II. SUMMARY OF OPINIONS

Comparisons Between Power Sold By Florida Power & Light Company to J.M. Products, Inc. and Power Reported As Absorbed By Fabio Penon and Fulvio Fabiani

Mr. Murray will describe how the data generated by Fabio Penon ("Penon") and Fulvio Fabiani ("Fabiani") pertaining to the power absorbed during the testing of the E-cat plant at ADDRESS OF DORAL LOCATION("JMP") is at odds with the the amount of power used at Doral location as demonstrated by Florida Power & Light Company ("FPL") records. *See* **"Exhibit A."** Using the values of power absorption into the reactor reported by Penon to Industrial Heat, LLC, Mr. Murray compared these numbers to the actual power provided by FPL to the Doral location and found numerous inaccuracies reported by Penon and Fabiani.

Mr. Murray also compared Penon and Fabiani's data to the historical average amount of power that the Doral location used before and after the purported "guarantee performance test" (specifically before and after the reactor was turned on). Once again, Mr. Murray's analysis demonstrates that Penon and Fabiani's reports on the power absorbed into the E-cat plant are

inaccurate when measured against power provided by FPL to Doral location are riddled with inaccuracies when measured against the power actually provided by FPL to the plant. *See* **"Exhibit B."**

Inverse Relationship of Power Input to Plant and Coefficient of Power

Using the values reported by Penon to Industrial Heat, Mr. Murray compared the reported power input to the E-cat plant reported by Penon against the reported coefficient of power ("COP") reported by Penon as reflected in Figure *See* **"Exhibit C."** After comparing the two sets of numbers, Mr. Murray's results revealed an inverse relationship between the input power and the COP (i.e., when the plant draws less power, the COP of the E-cat plant increases). Mr. Murray will testify that there is no logical reason why the COP should be changing inversely to the amount of power inputted given that the same E-cat plant was used throughout the "guaranteed performance test."

Heat Simulations

Mr. Murray will testify as to the heat simulations he ran to recreate the thermal conditions inside the Doral location The thermal simulation involved a 500 kw or 800 kw power source uniformly distributed in a container at the Doral location, 7861 NW 46th Street, Doral, FL 33166 and releasing heat into the ambient warehouse of the Doral location. Mr. Murray's simulation demonstrates how the heat would typically build over time to achieve a steady state temperature. *See "Thermal Simulations"* This means that the room would have been heated to a temperature unsuited for a human working environment.

Water Flow

Mr. Murray will be testifying as to the tests he conducted on the water flow into the E-cat plant. The results of Mr. Murray's test show that the measured flow meter used by Penon would report a much higher flow of water than was actually occurring. The purpose of the test was to determine how the flow meter used by Penon operated when a limited amount of water flowed through it. Murray's results showed that the water meter Penon used would show the results that Penon reported when in fact the actual water flowing through the meter was multiples less than what the meter showed. the behavior of the flow meter when a very minimum amount of water was going through it. *See "Water Flow Test Results".*

QUALIFICATIONS

Mr. Murray's educational background includes an ABD from University of Maryland, an M.S. from University of Utah and a B.S. from Michigan State University.

Dated: January 30, 2017.

Respectfully submitted,

/s/ Christopher R.J. Pace

Christopher R.J. Pace
cpace@jonesday.com
Florida Bar No. 721166
Christopher M. Lomax
clomax@jonesday.com
Florida Bar No. 56220
Christina T. Mastrucci
cmastrucci@jonesday.com
Florida Bar No. 113013
Erika S. Handelson
ehandelson@jonesday.com
Florida Bar No. 91133
Michael A. Maugans
mmaugans@jonesday.com
Florida Bar No. 107531
JONES DAY
600 Brickell Avenue
Brickell World Plaza
Suite 3300
Miami, FL 33131
Tel: 305-714-9700
Fax: 305-714-9799
Counsel for Defendants/Counter-Plaintiffs Third Party-Plaintiffs

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was served by e-mail on counsel of record this 30th day of January, 2017.

/s/ Michael A. Maugans
Michael A. Maugans

SERVICE LIST

John W. Annesser, Esq.
Brian Chaiken
Paul D. Turner
D. Porpoise Evans
PERLMAN, BAJANDAS, YEVOLI &
ALBRIGHT, P.L.
283 Catalonia Avenue, Suite 200
Coral Gables, FL 33134
Tel.: (305) 377-0086
Fax: (305) 377-0781
jannesser@pbyalaw.com
bchaiken@pbyalaw.com
pturner@pbyalaw.com
pevans@pbyalaw.com
Counsel for Plaintiffs

Fernando S. Aran
ARAN, CORREA & GUARCH, P.A.
255 University Drive
Coral Gables, FL 33134-6732
Tel.: (305) 665-3400
Fax: (305) 665-2250
faran@acg-law.com
Counsel for JM Products, Inc., Henry Johnson and James Bass

Rodolfo Nuñez
RODOLFO NUNEZ, P.A.
255 University Drive
Coral Gables, Florida 33134
Tel: (305) 665-3400
Fax: (305) 665-2250
rnunez@acg-law.com
Counsel for United States Quantum Leap, LLC and Fulvio Fabiani

EXHIBIT A

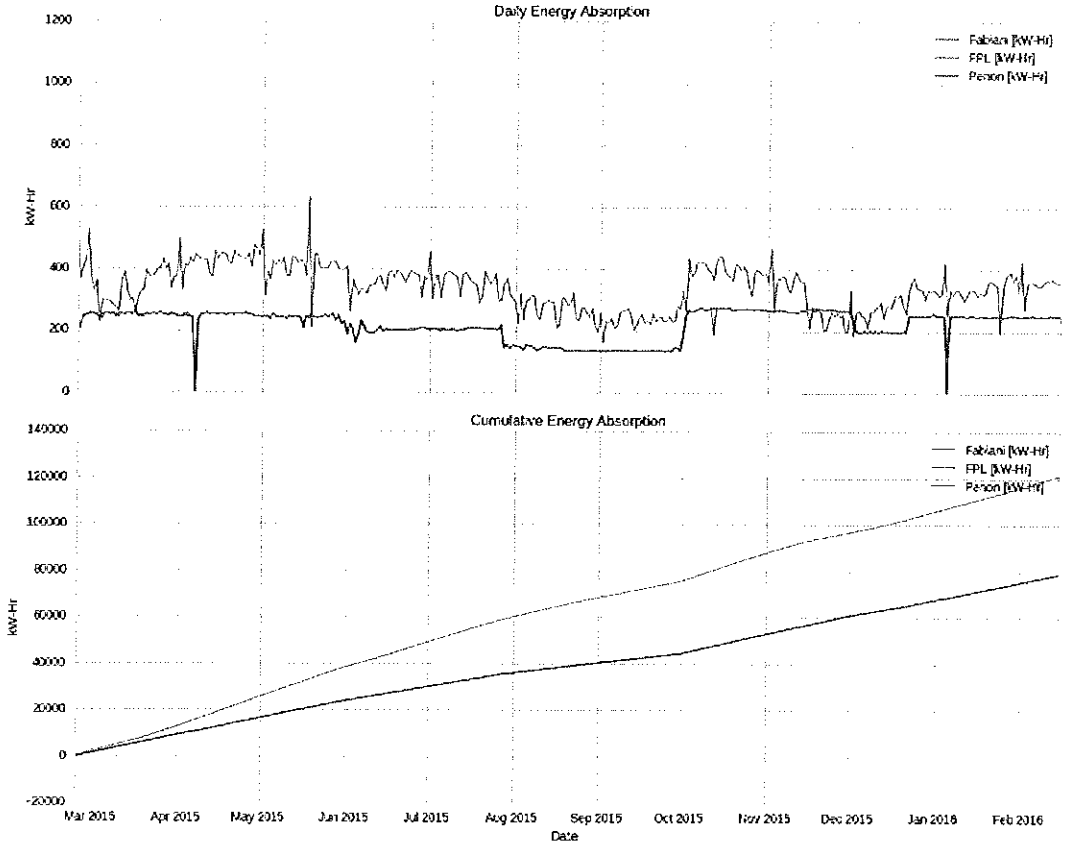

Daily Energy Absorption
Fabiani [kW-Hr]
FPL [kW-Hr]
Penon [kW-Hr]
kW-Hr
1200
1000
800
600
400
200
0
Cumulative Energy Absorption
Fabiani [kW-Hr]
FPL [kW-Hr]
Penon [kW-Hr]
kW-Hr
140000
120000
100000
80000
60000
40000
20000
0
-20000
Mar 2015
Apr 2015
May 2015
Jun 2015
Jul 2015
Aug 2015
Sep 2015
Oct 2015
Nov 2015
Dec 2015
Jan 2016
Feb 2016
Date

EXHIBIT B

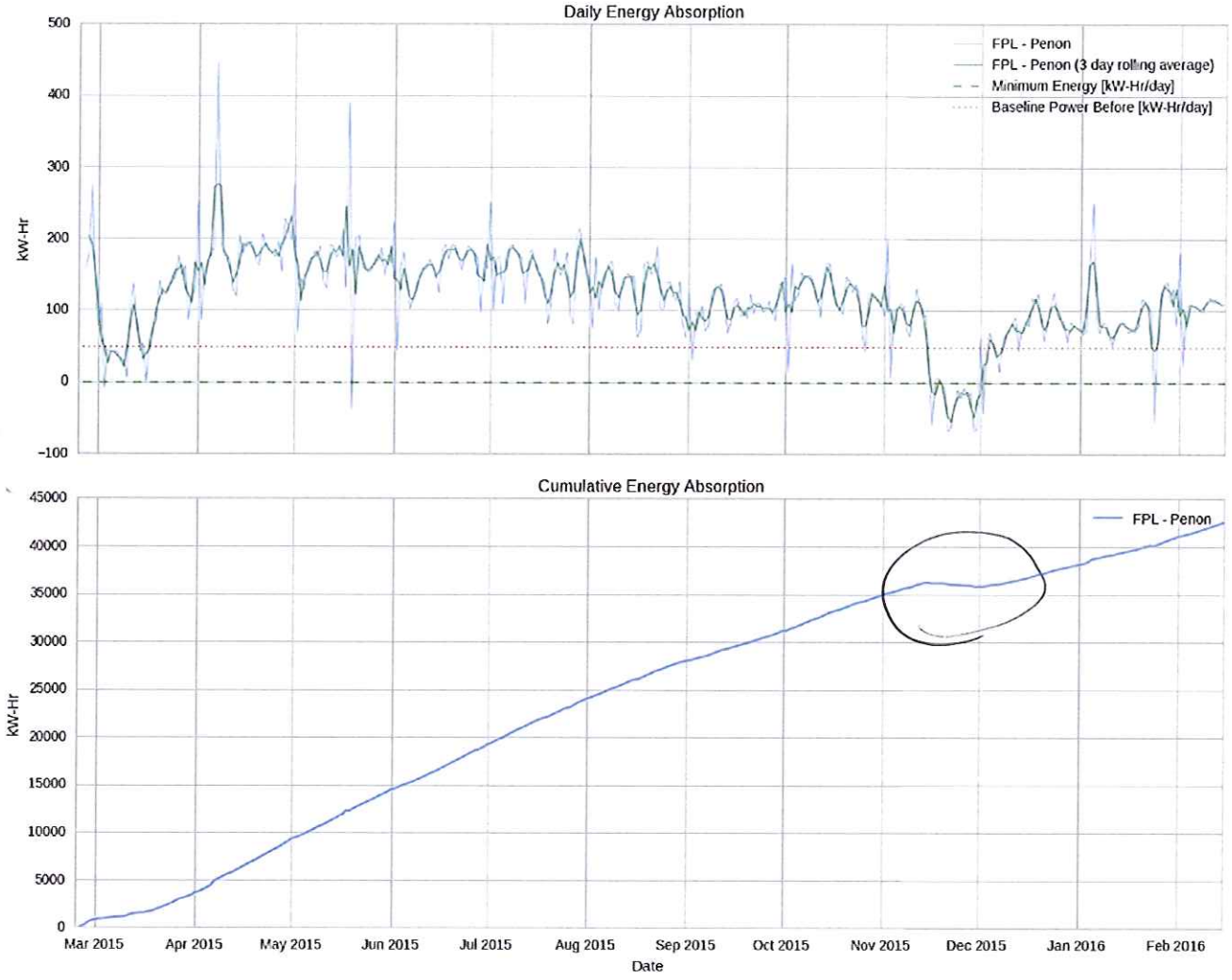
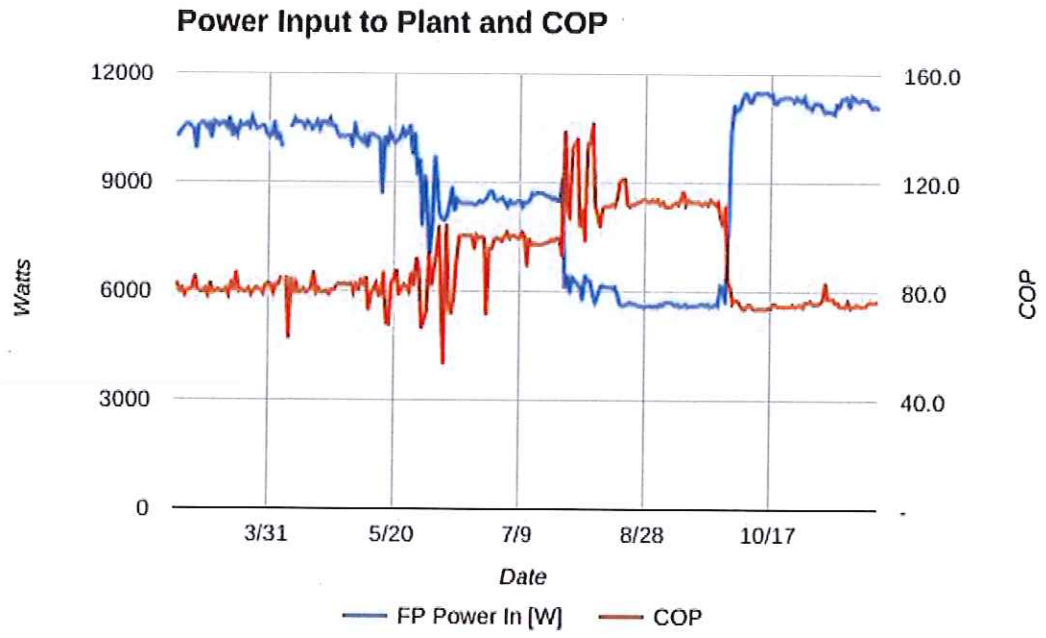

Daily Energy Absorption
FPL - Penon
FPL - Penon (3 day rolling average)
Minimum Energy [kW-Hr/day]
Baseline Power Before [kW-Hr/day]
kW-Hr
500
400
300
200
100
0
-100
Cumulative Energy Absorption
FPL - Penon
kW-Hr
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
Mar 2015
Apr 2015
May 2015
Jun 2015
Jul 2015
Aug 2015
Sep 2015
Oct 2015
Nov 2015
Dec 2015
Jan 2016
Feb 2016
Date

EXHIBIT C


Power Input to Plant and COP
12000
9000
6000
3000
0
Watts
160.0
120.0
80.0
40.0
-
COP
3/31
5/20
7/9
8/28
10/17
Date
FP Power In [W]
COP