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Financial performance analysis of Energy Sector Companies of Spain & Portugal - Data Envelopment Analysis (DEA)

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Abstract: The major part of infrastructure and maintenance of society in almost all countries are highly dependent on the energy industry. As modern society is progressing energy need are increasing more and more. Upstream energy companies are facing challenges of rising commodity prices and fierce competition for reserves and in strive to achieve more business, they extend their operations to remote difficult locations. Meanwhile, downstream energy companies are coping with managing uneven demand, while at the retail level they are seeing greater competition and margin pressures. The purpose of this paper is the evaluation of the profitability, financial and liquidity performances subsequent to the reactions of the energy company management in term of staff and operating expenses. This analysis is done by using Data Envelopment Analysis (DEA) methodology. DEA is highly dependent on the availability of data. The domain selected for the data collection is the energy companies operating in Spain and Portugal only. The secondary source selected for financial data collection is Sabi. It contains comprehensive information on companies in Spain and Portugal. This research work will enable decision makers to have more insight into the financial performance of these companies. The efficiency scores and references help them to choose their benchmark and follow the good practices performed by that company. Data envelopment analysis is further enhanced in this paper using the additional approach to get more deep insight into the input criteria. We have also carry out assessment of criteria between each other and check their effect on the efficiency score of DMU.

1. Introduction

Energy is one of the most vital factors for the social and economic development of countries. Maintenance of societies is mostly dependent on the energy industry. As a result of increasing energy consumption, the efficient usage of energy sources and a good energy policy are main problem of governments. For a good energy policy, it is very important to measure and evaluate the efficiency of energy companies.

Upstream energy companies are facing challenges of rising commodity prices and fierce competition for reserves and in strive to achieve more business, they extend their operations to remote difficult locations. Meanwhile, downstream energy companies are coping with managing uneven demand, while at the retail level they are seeing greater competition and margin pressures.

Improving performance and efficiency is critical for all the energy companies to get large share of the revenue pie. Assessing financial performance enables energy auditors and managers to identify best practices that should be continued and replicated from other benchmarked energy companies. It establishes reference points for managers for measuring and rewarding good performance. The impact to the market environment is also an important consideration while assessing the financial performance of energy companies.

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The purpose of this paper is the evaluation of the profitability, financial and liquidity performances subsequent to the reactions of the energy company management in term of staff and operating expenses.

An example of performance assessment process is to determine if an energy company uses resources more efficient than other similar companies. To assess the performance, a mathematical model based on any data analytics tool can be used. The results obtained from the model shows the efficiency scores which provide a comparison between the performance of the companies.

Section 2 details the methodology applied in this research. Section 3 presents case study and description of criteria used for analysis. Sections 4 presents computational results and discusses the results of the case study consisting of the performance assessment of energy companies. Section 5 concludes and presents future research directions.

2. Methodology

Data envelopment Analysis (DEA) is a model that can measure the efficiencies of Decision Making Units (DMUs). DEA uses just input and output criteria values of DMUs for determining the weights of each criteria. By this way DEA can determine the best weights for each DMU. In literature DEA is well-known and useful method to evaluate the efficiencies of DMUs. Envelope is a border line that touches at least one IO point and cover all IO points. The IO points of all efficient DMUs are located on the upper envelope that called efficient frontier.

DEA was developed by Charnes, Cooper and Rhodes [1] by providing constant return to scale (CCR) and Banker et al. [2] extend it by providing variable return to scale (BCC). There are several various of DEA is developed in literature.

Seiford and Thrall [3] presented a review of DEA for early stage developments. Seiford [4] reviewed the evolution of DEA between 1978 and 1995. For a comprehensive look these articles can be checked: [5]–[10].

In several fields DEA studies are used successfully. For instance, banking, healthcare, education, hospital efficiency are most common study fields [11]. According to Gattoufi et al. [12] %67 of DEA studies presented as real-life cases.

Azadeh et al. [13] integrated DEA and principal component analysis method to asses and optimize total energy efficiency in energy intensive manufacturing sectors. Olanrewaju et al. [14] used DEA to analyze total energy efficiency in an industrial sector. Zhou and Ang [15] proposed a DEA model for measuring energy efficiency performance and applied the model to 21 OECD countries. Sarıca and Or [16] presented an analyze for efficiency assessment of Turkish power plants by using DEA.

Energy is very important issue for all countries. So, any improvements on each criterion can be vital. Because of that in this paper we used BCC method. In BCC method, production frontier is piece-wise linear. Because it has variable returns to scale characteristic. In this section, the BCC model and basic concepts are reviewed. Assume that there is an input / output (IO) point representing the input and output values of each DMU. The efficiency score, which is generally known as the output/input ratio, is easy to compute for single input and single output problems. However, we need to redefine input and output if we have more factors. In this case, the weight for each factor should also be considered to maximize the ratio. There are several DEA models in the literature. The BCC model is one of the famous ones and is also the underlying model used in this study. Since we assume that input reduction is the main aim of our study, the input oriented BCC model is appropriately used as stated in Cook et al. [17]. We will first explain the input oriented BCC primal model (P_o^{BCC}). Assume that we have n DMUs, m inputs and p outputs.

Notation:
i: output index i=1,2,…,p
j: input index j=1,2,…,m
k: DMU index k=1,2,…,n
o: index of the DMU currently evaluated
u_j: weight of input j
v_i: weight of output i
$x_{j,k}$: j^{th} input value of DMU_k
$y_{i,k}$: i^{th} output value of DMU_k

Model:

P_o^{BCC}: Max. $h_o = \sum_{i=1}^{p} v_i\, y_{i,o} + \beta$

$\sum_{j=1}^{m} u_j\, x_{j,o} = 1.0$ (1)

$\sum_{i=1}^{p} v_i\, y_{i,k} - \sum_{j=1}^{m} u_j\, x_{j,k} + \beta \leq 0 \qquad \forall k$ (2)

$v_i, u_j \geq 0 \qquad \forall i, \forall j$ (3)

$\beta\ free$ (4)

The corresponding dual model (D_o^{BCC}) is as follows after adding θ and $\boldsymbol{\lambda}$ dual variables. We can obtain the reference set of the DMU_o when we solve the dual model. So, the convex combination of IO points of efficient DMUs with strictly positive $\boldsymbol{\lambda}$ values determine a projection point on the efficient frontier for the IO point of DMU_o. This projection point provides information for the DMU_o to be efficient with minimum effort. If this projection point dominates the IO point of DMU_o, it is clear that the DMU_o is inefficient. If and only if the IO point of DMU_o is exactly equal to the projection point, can we say that the DMU_o is efficient. In other words, every DMU with a strictly positive λ value is BCC efficient.

D_o^{BCC}: Min. θ_o

$\theta_o x_{j,o} - \sum_{k=1}^{n} \lambda_k x_{j,k} \geq 0 \qquad \forall j$ (5)

$\sum_{k=1}^{n} \lambda_k y_{i,k} \geq y_{i,o} \qquad \forall i$ (6)

$\sum_{k=1}^{n} \lambda_k = 1$ (7)

$\lambda_k \geq 0 \qquad \forall k$ (8)

$\theta_o\ free$ (9)

The goal of the dual model is to minimize θ_o for a specific DMU_0. If at least one input or output value of the DMU_o equals that of the input or output value of the projection point, then $\theta_o^* = 1$. Constraint set (5) requires that the compression of inputs by the variable θ_o be greater than the inputs of the projection point. Constraint set (6) requires that the outputs of the projection point are greater than or equal to the outputs of the DMU_o. Constraint (7), together with constraint set (8), imposes a convexity condition. In this model, the maximum rate of the projection point's inputs to the DMU_o's inputs determine the efficiency score, θ_o^*. Because of this property the model is known as the *input oriented* model.

3. Case Study

Data envelopment analysis is highly dependent on the availability of data. The domain selected for the data collection is the energy companies operating in Spain and Portugal only. The secondary source selected for financial data collection is Sabi [1].

Sabi contains comprehensive information on companies in Spain and Portugal. We can use it to research individual companies, search for companies with specific profiles and conduct analyses. The description of the criteria selected for inputs and outputs are given below.

3.1. Description of Input criteria

Equity can be defined as the value of the shares issued by a company. It is the difference of Assets and Liabilities. The unit of measure is in Euro.
Capital is wealth in the form of money or other assets owned by a person or organization or available for a purpose such as starting a company or investing. The unit of measure is in Euro.

Working capital is the capital of a business which is used in its day-to-day trading operations, calculated as the current assets minus the current liabilities. The unit of measure is in Euro.

Cost of Goods Sold and Materials Consumed refer to the carrying value of goods sold during a particular period. Costs of goods made by the business include material, labor, and allocated overhead. The unit of measure is in Euro.

Staff expenses are incurred in the performance of the duties of the employment and are directly related to the 'nature of the employee's employment'. The unit of measure is in Euro.

Depreciation is a reduction in the value of an asset over time, due in particular to wear and tear. The unit of measure is in Euro.

Interest expense is the cost of funds loaned to a business by a lender, and recognized within an accounting period. The amount of interest is typically expressed as a percentage of the outstanding amount of principal. The unit of measure is in Euro.

3.2. Description of Output criteria

Operating income is the amount of profit realized from a business's operations after taking out operating expenses. The unit of measure is in Euro.

Net Profit is the actual profit after working expenses not included in the calculation of gross profit have been paid. The unit of measure is in Euro.

Economic profit is the difference between the revenue received from the sale of an output and the opportunity cost of the inputs used. Economic profitability (%) is the ratio of this difference to opportunity cost.

A financial profitability ratio is a measure of profitability, which is a way to measure a company's performance. Profitability is simply the capacity to make a profit, and a profit is what is left over from income earned after you have deducted all costs and expenses related to earning the income.

Return on equity (%) is the ratio of net income to the average shareholders' equity. Return on invested capital (%) is the ratio of earnings, tax-rate and invested capital. Return on total assets (%) is the ratio of net income to assets. Profit margin (%) is the ratio of net profit to net sales.

The asset turnover ratio is an efficiency ratio that measures a company's ability to generate sales from its assets by comparing net sales with average total assets. In other words, this ratio shows how efficiently a company can use its assets to generate sales.

4. Computational Results and Discussions

The data collected from Sabi Database regarding 349 energy companies located in Spain and Portugal are analyzed as per the input/output criteria mentioned in section 3. Each company is taken as single DMU and name of company is encoded as numbers. The name of the company & detail results can be retrieved by using list mentioned in Annex 'C' through number and respective name.

The DEA is conducted on the data using Cplex 12.1 Callable solver in the environment of C++. The results obtained after running the algorithm are mentioned in Table 1. It indicates only the efficient DMUs which have score of 1.00 and the quantity of efficient DMUs is 147 out of 349.

Table 1. BCC Efficient DMUs (147 out of 349)

DMU 1	DMU 36	DMU 87	DMU 161	DMU 262	DMU 317
DMU 2	DMU 42	DMU 88	DMU 167	DMU 263	DMU 322
DMU 3	DMU 43	DMU 92	DMU 169	DMU 267	DMU 323
DMU 4	DMU 44	DMU 95	DMU 178	DMU 271	DMU 324
DMU 5	DMU 45	DMU 100	DMU 181	DMU 272	DMU 325

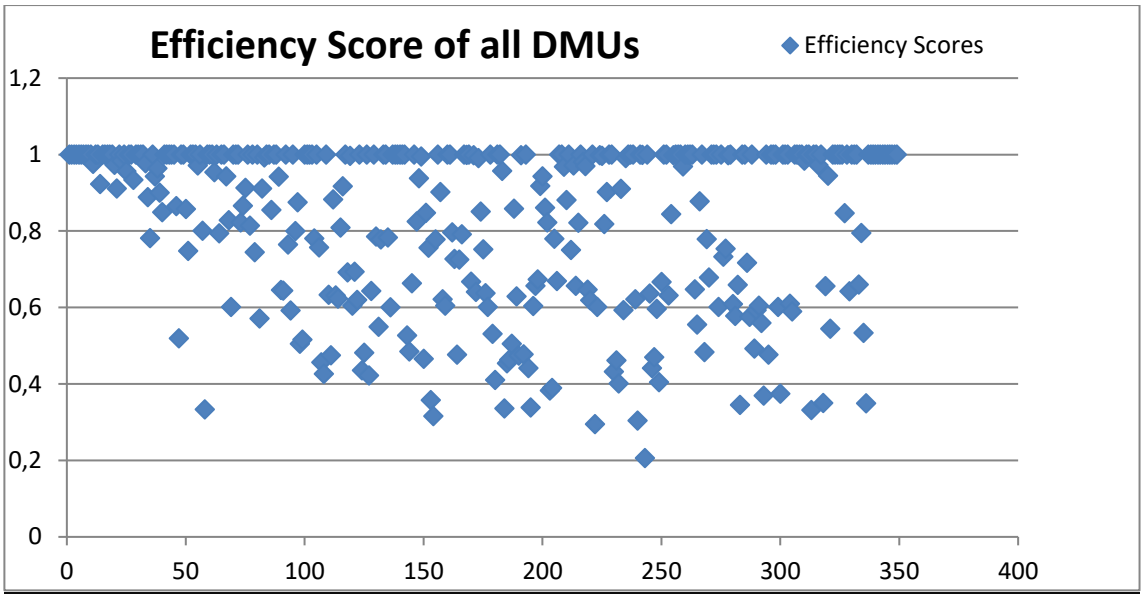
DMU 6	DMU 48	DMU 101	DMU 182	DMU 273	DMU 326
DMU 7	DMU 49	DMU 102	DMU 193	DMU 275	DMU 328
DMU 8	DMU 52	DMU 103	DMU 207	DMU 279	DMU 330
DMU 9	DMU 53	DMU 105	DMU 208	DMU 284	DMU 331
DMU 10	DMU 54	DMU 109	DMU 211	DMU 285	DMU 332
DMU 12	DMU 56	DMU 117	DMU 221	DMU 288	DMU 337
DMU 13	DMU 59	DMU 123	DMU 228	DMU 294	DMU 338
DMU 15	DMU 60	DMU 126	DMU 229	DMU 296	DMU 339
DMU 16	DMU 61	DMU 129	DMU 236	DMU 297	DMU 340
DMU 17	DMU 63	DMU 133	DMU 237	DMU 298	DMU 341
DMU 18	DMU 65	DMU 134	DMU 238	DMU 301	DMU 342
DMU 19	DMU 66	DMU 137	DMU 241	DMU 302	DMU 343
DMU 22	DMU 70	DMU 138	DMU 244	DMU 303	DMU 345
DMU 24	DMU 71	DMU 139	DMU 251	DMU 306	DMU 346
DMU 26	DMU 72	DMU 140	DMU 252	DMU 307	DMU 347
DMU 27	DMU 76	DMU 141	DMU 256	DMU 308	DMU 348
DMU 29	DMU 78	DMU 142	DMU 257	DMU 309	DMU 349
DMU 30	DMU 80	DMU 146	DMU 258	DMU 312	
DMU 31	DMU 84	DMU 156	DMU 260	DMU 314	
DMU 32	DMU 85	DMU 160	DMU 261	DMU 315	

We have analyzed that how many time each efficient DMU is taken as reference by inefficient DMUs and it is given in Table 2. As can be seen in Table 2 that DMU182 is taken as reference by other 107 DMUs. This means 107 DMUs should decrease their inputs as DMU182 and should increase their outputs as DMU182 for being efficient. We can say that the location of DMU182 is the easiest location for 107 DMUs for locating on efficient frontier.

Table 2. Number of usage for each efficient DMUs as reference by other DMUs

DMU182	107	DMU346	18	DMU63	6	DMU3	3	DMU10	1
DMU256	64	DMU312	17	DMU211	6	DMU65	3	DMU12	1
DMU60	57	DMU16	16	DMU315	6	DMU133	3	DMU17	1
DMU87	52	DMU229	16	DMU348	6	DMU208	3	DMU29	1
DMU296	49	DMU138	15	DMU80	5	DMU284	3	DMU42	1
DMU27	46	DMU261	15	DMU156	5	DMU347	3	DMU53	1
DMU78	42	DMU6	14	DMU309	5	DMU15	2	DMU72	1
DMU102	38	DMU297	14	DMU332	5	DMU49	2	DMU129	1
DMU92	35	DMU123	12	DMU345	5	DMU76	2	DMU141	1
DMU22	33	DMU59	10	DMU9	4	DMU103	2	DMU146	1
DMU1	32	DMU257	10	DMU36	4	DMU167	2	DMU193	1
DMU302	28	DMU52	9	DMU54	4	DMU178	2	DMU236	1
DMU32	27	DMU325	9	DMU105	4	DMU267	2	DMU271	1
DMU169	27	DMU323	8	DMU251	4	DMU279	2	DMU272	1
DMU45	25	DMU342	8	DMU252	4	DMU308	2	DMU303	1
DMU71	24	DMU13	7	DMU275	4	DMU324	2	DMU317	1
DMU262	24	DMU134	7	DMU301	4	DMU328	2	DMU340	1
DMU181	23	DMU139	7	DMU306	4	DMU339	2	DMU349	1
DMU330	21	DMU326	7	DMU331	4	DMU343	2		
DMU137	18	DMU30	6	DMU338	4	DMU2	1		

Note: Other efficient DMUs are used as a reference only by themselves. Therefore, these DMUs are omitted from the list.



Şekil 1. Efficiency score of all DMUs

The efficiency score of all the DMUs are summarized graphically in the Figure 1. According to Figure 1, we can say that most of DMUs have efficiency scores higher than 0.4 value. The details are mentioned in Annex 'A'.

The total monetary effect of inefficient financial management according to the four input criteria is given in Table 3. The significant four criteria are 'Capital', 'Working capitals', 'Cost of goods sold' and 'Staff expenses'. It is calculated by using the following.

Monetary Effect = $(x_0^i - x_0^i * \theta_0)$

where $x_0^i = ith\ Input\ criteria\ value\ of\ DMU_0$

$\theta_o = Efficiency\ score\ of\ DMU_0$

Tablo 1. Monetary effect of inefficient financial management by all companies as per the input criteria.

Input Criteria	Amount	
Capital	49,764.96	EUR
Working capital	65,423.21	EUR
Cost Goods Sold & Consumed materials	100,824.48	EUR
Staff expenses	23,199.98	EUR
Total effect in monetary terms, yearly	239,212.63	EUR

It will be interesting to know that what is the effect of each input criterion on 'efficiency score (θ)' of each DMU. In order to evaluate this, we have used a strategy to divide the dataset into sub-problems. Each time one criterion subtracted from the model and model is re-evaluated to calculate the efficiency score which is named is 'sub-problems efficiency scores (θ^s)'. Then, the difference of θ and θ_s highlights the effect of that criterion. The main problem is divided into 7 sub-problems and results are given in Table 4 to 10.

Each table of sub-problem results contain the top ten DMUs which have highest value of difference $(\theta - \theta^s)$. If we look at the tables, the strange one is the Table 7. It has very high values of $(\theta - \theta^s)$.

We can interpret the results like for DMU 70, for instance it is efficient for main problem but when we remove the 4th input criteria then the efficiency score of this DMU decreases up to 0.036. This is very low value, so we can say that DMU70 has very good performance in 4th input criterion while it is poor in all other criteria.

Table 4 - Sub Problem 1

DMU	θ	$\theta - \theta_1^s$
151	0.526175	0.3209744
212	0.453902	0.2964955
316	0.699782	0.2720077
250	0.408482	0.2578739
64	0.550995	0.2429467
100	0.769635	0.2303649
170	0.441636	0.2252044
103	0.775283	0.2247168
320	0.724816	0.2199133
162	0.592648	0.2031832

Table 5 - Sub Problem 2

DMU	θ	$\theta - \theta_2^s$
255	0.200727	0.7976095
173	0.332373	0.6577256
171	0.351058	0.6469459
224	0.38144	0.6165636
225	0.452268	0.5444094
259	0.452691	0.5161066
209	0.526408	0.4413339
278	0.575265	0.4229026
213	0.57562	0.395701
217	0.59197	0.3885659

Table 6 - Sub Problem 3

DMU	θ	$\theta - \theta_3^s$
72	0.582095	0.417904865
316	0.565071	0.406718706
42	0.642169	0.357830698
266	0.520189	0.356865139
235	0.64961	0.340753418
264	0.312463	0.334550868
284	0.713578	0.286421922
127	0.153521	0.268058664
160	0.74262	0.257379747
136	0.350914	0.249414293

Table 7 - Sub Problem 4

DMU	θ	$\theta - \theta_4^s$
70	0.036209	0.9637909
56	0.071305	0.9286946
24	0.080904	0.9190955
71	0.089172	0.9108282
160	0.138755	0.8612449
39	0.079607	0.8200761
72	0.180037	0.8199625
288	0.185111	0.8148886
18	0.201798	0.7982023
102	0.207426	0.792574

Table 8 - Sub Problem 5

DMU	θ	$\theta - \theta_5^s$
74	0.332003	0.5334053
82	0.393811	0.5174333
63	0.501876	0.4981239
235	0.524576	0.4657877
39	0.469841	0.4298429
35	0.370643	0.4103729
67	0.571276	0.3718264
64	0.430483	0.3634593
47	0.17005	0.3485998
115	0.463131	0.3458248

Table 9 - Sub Problem 6

DMU	θ	$\theta - \theta_6^s$
241	0.477819	0.5221807
183	0.489563	0.4677563
335	0.102032	0.4310916
146	0.602522	0.3974779
202	0.459349	0.3631815
175	0.454842	0.2967216
231	0.167531	0.2933583
253	0.359639	0.2719405
268	0.216778	0.2665026
147	0.567876	0.257093

Table 10 - Sub Problem 7

DMU	θ	$\theta - \theta_7^s$
201	0.441212	0.4196034
109	0.628931	0.3710691
215	0.486859	0.3341325
226	0.505783	0.3122763
83	0.683884	0.3082079
34	0.588471	0.2994867
61	0.709298	0.290702
64	0.50993	0.2840121
166	0.515716	0.2751614
282	0.391129	0.2674381

If we evaluate the criteria between each other, then 4th input criterion has the most effect on the DMUs. If there is any DMU which is least effected by sub-problem strategy, then we can say that it has stable performance against criteria.

So, we proposed a new approach to further evaluate the efficiency scores. We re-calculated the efficiency scores ($\tilde{\theta}$) by taking average of efficiency scores (θ^s) of each sub-problems. The outcome of this approach is to stabilize the effect of all the input criteria on the efficiency scores. The results are attached as Annex 'B'.

The DMUs which remain efficient after the re-calculation of the efficiency scores ($\tilde{\theta}$) are given in Table 11. These DMUs have shown good performance in all input criteria after re-evaluation.

Table 11. Number of usage for each efficient DMUs as reference by other DMUs

DMU 1	DMU 32	DMU 181	DMU 302	DMU 339
DMU 2	DMU 45	DMU 182	DMU 308	DMU 340
DMU 3	DMU 49	DMU 193	DMU 309	DMU 342
DMU 6	DMU 52	DMU 211	DMU 315	DMU 343
DMU 9	DMU 53	DMU 229	DMU 322	DMU 345
DMU 10	DMU 78	DMU 257	DMU 323	DMU 346
DMU 13	DMU 92	DMU 258	DMU 325	DMU 347
DMU 16	DMU 123	DMU 275	DMU 328	DMU 348
DMU 22	DMU 167	DMU 296	DMU 330	
DMU 27	DMU 169	DMU 297	DMU 338	

4. Conclusion

The performance of energy industry is key factor for the progress of both Spain and Portugal. This research work will enable decision makers to have more insight into the financial performance of these companies. The efficiency scores and references help them to choose their benchmark and follow the good practices performed by that company. Data envelopment analysis is further enhanced in this paper using the additional approach to get more deep insight into the input criteria. We have also carry out assessment of criteria between each other and check their effect on the efficiency score of DMU.

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Appendices

Appendix A

DMU	Eff. Score	DMU	Eff. Score	DMU	Eff. Score	DMU	Eff. Score	DMU	Eff. Score	DMU	Eff. Score
DMU 11	0.975288	DMU 83	0.992092	DMU 135	0.782961	DMU 184	0.335893	DMU 223	0.601199	DMU 278	0.998168
DMU 14	0.922866	DMU 86	0.854839	DMU 136	0.600328	DMU 185	0.454097	DMU 224	0.998004	DMU 280	0.608513
DMU 20	0.972609	DMU 89	0.942233	DMU 143	0.526966	DMU 186	0.462751	DMU 225	0.996678	DMU 281	0.5775
DMU 21	0.91094	DMU 90	0.645097	DMU 144	0.48474	DMU 187	0.504445	DMU 226	0.818059	DMU 282	0.658567
DMU 23	0.98269	DMU 91	0.643803	DMU 145	0.663113	DMU 188	0.858369	DMU 227	0.901596	DMU 283	0.344671
DMU 25	0.956173	DMU 93	0.764439	DMU 147	0.824969	DMU 189	0.6288	DMU 230	0.431529	DMU 286	0.716674
DMU 28	0.933115	DMU 94	0.59168	DMU 148	0.937794	DMU 190	0.473591	DMU 231	0.46089	DMU 287	0.574958
DMU 33	0.976882	DMU 96	0.799906	DMU 149	0.994511	DMU 191	0.998248	DMU 232	0.401008	DMU 289	0.491977
DMU 34	0.887958	DMU 97	0.875282	DMU 150	0.465778	DMU 192	0.477339	DMU 233	0.909734	DMU 290	0.593028
DMU 35	0.781016	DMU 98	0.504683	DMU 151	0.847149	DMU 194	0.441213	DMU 234	0.592581	DMU 291	0.604235
DMU 37	0.943149	DMU 99	0.515559	DMU 152	0.755591	DMU 195	0.338237	DMU 235	0.990364	DMU 292	0.558994
DMU 38	0.963706	DMU 104	0.780005	DMU 153	0.35779	DMU 196	0.603188	DMU 239	0.62079	DMU 293	0.369441
DMU 39	0.899683	DMU 106	0.756494	DMU 154	0.31545	DMU 197	0.656655	DMU 240	0.303794	DMU 295	0.476019
DMU 40	0.848635	DMU 107	0.455883	DMU 155	0.777926	DMU 198	0.673508	DMU 242	0.998687	DMU 299	0.601332
DMU 41	0.999361	DMU 108	0.426303	DMU 157	0.901671	DMU 199	0.917673	DMU 243	0.20552	DMU 300	0.374573
DMU 46	0.864831	DMU 110	0.633171	DMU 158	0.620936	DMU 200	0.942434	DMU 245	0.636529	DMU 304	0.609797
DMU 47	0.51865	DMU 111	0.47428	DMU 159	0.60479	DMU 201	0.860815	DMU 246	0.441272	DMU 305	0.589377
DMU 50	0.857436	DMU 112	0.882635	DMU 162	0.795831	DMU 202	0.822531	DMU 247	0.470013	DMU 310	0.98415
DMU 51	0.747572	DMU 113	0.631213	DMU 163	0.726511	DMU 203	0.382387	DMU 248	0.596288	DMU 311	0.999315
DMU 55	0.971383	DMU 114	0.623009	DMU 164	0.476609	DMU 204	0.388849	DMU 249	0.404454	DMU 313	0.331538
DMU 57	0.800404	DMU 115	0.808955	DMU 165	0.725103	DMU 205	0.77981	DMU 250	0.666356	DMU 316	0.971789
DMU 58	0.332752	DMU 116	0.917011	DMU 166	0.790878	DMU 206	0.669156	DMU 253	0.631579	DMU 318	0.349757
DMU 62	0.953525	DMU 118	0.691887	DMU 168	0.998491	DMU 209	0.967742	DMU 254	0.843963	DMU 319	0.655692
DMU 64	0.793942	DMU 119	0.996733	DMU 170	0.666841	DMU 210	0.880999	DMU 255	0.998336	DMU 320	0.94473
DMU 67	0.943102	DMU 120	0.604437	DMU 171	0.998004	DMU 212	0.750398	DMU 259	0.968798	DMU 321	0.544149
DMU 68	0.827972	DMU 121	0.693431	DMU 172	0.640794	DMU 213	0.971321	DMU 264	0.647013	DMU 327	0.846188
DMU 69	0.601418	DMU 122	0.619896	DMU 173	0.990099	DMU 214	0.655977	DMU 265	0.5554	DMU 329	0.641998
DMU 73	0.82181	DMU 124	0.435556	DMU 174	0.850681	DMU 215	0.820992	DMU 266	0.877054	DMU 333	0.659689
DMU 74	0.865409	DMU 125	0.481265	DMU 175	0.751564	DMU 216	0.999341	DMU 268	0.483281	DMU 334	0.794873
DMU 75	0.912742	DMU 127	0.42158	DMU 176	0.637143	DMU 217	0.980536	DMU 269	0.778382	DMU 335	0.533124
DMU 77	0.814114	DMU 128	0.64274	DMU 177	0.600947	DMU 218	0.96982	DMU 270	0.677751	DMU 336	0.349074
DMU 79	0.744196	DMU 130	0.785587	DMU 179	0.53041	DMU 219	0.646456	DMU 274	0.601316	DMU 344	1
DMU 81	0.571019	DMU 131	0.549374	DMU 180	0.410509	DMU 220	0.618808	DMU 276	0.732971		
DMU 82	0.911245	DMU 132	0.777531	DMU 183	0.957319	DMU 222	0.294735	DMU 277	0.753221		

Appendix B

	Re-Calculated Efficiency Scores	Differences		Re-Calculated Efficiency Scores	Differences		Re-Calculated Efficiency Scores	Differences		Re-Calculated Efficiency Scores	Differences
DMU 1	1	0	DMU 38	0.8839	0.0799	DMU 75	0.7405	0.1723	DMU 112	0.7675	0.1152
DMU 2	1	0	DMU 39	0.6991	0.2006	DMU 76	0.9928	0.0072	DMU 113	0.5161	0.1151
DMU 3	1	0	DMU 40	0.7714	0.0772	DMU 77	0.6578	0.1563	DMU 114	0.5144	0.1086
DMU 4	0.9941	0.0059	DMU 41	0.9874	0.0120	DMU 78	1	0	DMU 115	0.6573	0.1517
DMU 5	0.9995	0.0005	DMU 42	0.8167	0.1833	DMU 79	0.6048	0.1394	DMU 116	0.7923	0.1248
DMU 6	1	0	DMU 43	0.9641	0.0359	DMU 80	0.8905	0.1095	DMU 117	0.9630	0.0370
DMU 7	0.9628	0.0372	DMU 44	0.9863	0.0137	DMU 81	0.4442	0.1268	DMU 118	0.5840	0.1079
DMU 8	0.9931	0.0069	DMU 45	1	0	DMU 82	0.6810	0.2302	DMU 119	0.9611	0.0356
DMU 9	1	0	DMU 46	0.7527	0.1122	DMU 83	0.8589	0.1332	DMU 120	0.5036	0.1008
DMU 10	1	0	DMU 47	0.3675	0.1511	DMU 84	0.9480	0.0520	DMU 121	0.5429	0.1505
DMU 11	0.8692	0.1061	DMU 48	0.9933	0.0067	DMU 85	0.9041	0.0959	DMU 122	0.5495	0.0704
DMU 12	0.9887	0.0113	DMU 49	1	0	DMU 86	0.7033	0.1515	DMU 123	1	0
DMU 13	1	0	DMU 50	0.7473	0.1102	DMU 87	0.9459	0.0541	DMU 124	0.3657	0.0699
DMU 14	0.8455	0.0774	DMU 51	0.6481	0.0994	DMU 88	0.9332	0.0668	DMU 125	0.3608	0.1204
DMU 15	0.9903	0.0097	DMU 52	1	0	DMU 89	0.8890	0.0532	DMU 126	0.9777	0.0223
DMU 16	1	0	DMU 53	1	0	DMU 90	0.5431	0.1020	DMU 127	0.3100	0.1116
DMU 17	0.9002	0.0998	DMU 54	0.9853	0.0147	DMU 91	0.5189	0.1249	DMU 128	0.5493	0.0935
DMU 18	0.8860	0.1140	DMU 55	0.9158	0.0556	DMU 92	1	0	DMU 129	0.9635	0.0365
DMU 19	0.9979	0.0021	DMU 56	0.8530	0.1470	DMU 93	0.6338	0.1307	DMU 130	0.7451	0.0404
DMU 20	0.9584	0.0142	DMU 57	0.6486	0.1518	DMU 94	0.4444	0.1473	DMU 131	0.4236	0.1258
DMU 21	0.7718	0.1391	DMU 58	0.2791	0.0537	DMU 95	0.9997	0.0003	DMU 132	0.6520	0.1255
DMU 22	1	0	DMU 59	0.9917	0.0083	DMU 96	0.6809	0.1190	DMU 133	0.9986	0.0014
DMU 23	0.8906	0.0921	DMU 60	0.9789	0.0211	DMU 97	0.8343	0.0409	DMU 134	0.9999	0.0001
DMU 24	0.8431	0.1569	DMU 61	0.9349	0.0651	DMU 98	0.3905	0.1142	DMU 135	0.6657	0.1172
DMU 25	0.8216	0.1346	DMU 62	0.8523	0.1012	DMU 99	0.4520	0.0635	DMU 136	0.4423	0.1581
DMU 26	0.8680	0.1320	DMU 63	0.8950	0.1050	DMU 100	0.9432	0.0568	DMU 137	0.9930	0.0070
DMU 27	1	0	DMU 64	0.5621	0.2318	DMU 101	0.9003	0.0997	DMU 138	0.9940	0.0060
DMU 28	0.7798	0.1533	DMU 65	0.9534	0.0466	DMU 102	0.8868	0.1132	DMU 139	0.9733	0.0267
DMU 29	0.9853	0.0147	DMU 66	0.8886	0.1114	DMU 103	0.8599	0.1401	DMU 140	0.9793	0.0207
DMU 30	0.9813	0.0187	DMU 67	0.7573	0.1858	DMU 104	0.6877	0.0923	DMU 141	0.9954	0.0046
DMU 31	0.9782	0.0218	DMU 68	0.6811	0.1469	DMU 105	0.9633	0.0367	DMU 142	0.9149	0.0851
DMU 32	1	0	DMU 69	0.4901	0.1114	DMU 106	0.6527	0.1038	DMU 143	0.4205	0.1065
DMU 33	0.9377	0.0392	DMU 70	0.8623	0.1377	DMU 107	0.3479	0.1080	DMU 144	0.4118	0.0729
DMU 34	0.7639	0.1241	DMU 71	0.8375	0.1625	DMU 108	0.3572	0.0691	DMU 145	0.6399	0.0232
DMU 35	0.6003	0.1807	DMU 72	0.7682	0.2318	DMU 109	0.9411	0.0589	DMU 146	0.8984	0.1016
DMU 36	0.9802	0.0198	DMU 73	0.6885	0.1333	DMU 110	0.5297	0.1035	DMU 147	0.6773	0.1476
DMU 37	0.7889	0.1543	DMU 74	0.6587	0.2068	DMU 111	0.4016	0.0727	DMU 148	0.8945	0.0433

Appendix C

DMU	Score	Benchmarks	Name
1	100.00%	38	ENDESA ENERGIA SAU
2	100.00%	2	EDP ENERGIA SA.
3	100.00%	2	EDP COMERCIALIZADORA SOCIEDAD ANONIMA.
4	100.00%	0	NEXUS ENERGIA, SA
5	100.00%	0	ENERGYA VM GESTION DE ENERGIA SL
6	100.00%	15	IBERDROLA RENOVABLES ENERGIA SA
7	100.00%	0	ENCE ENERGIA Y CELULOSA SA.
8	100.00%	0	ENGIE ESPAÑA SL.
9	100.00%	4	NATURGAS ENERGIA GRUPO SOCIEDAD ANONIMA

10	100.00%	1	AUDAX ENERGIA SA
11	97.47%	1 (0.02) 6 (0.01) 16 (0.01) 60 (0.85) 87 (0.12)	GARCIA MUNTE ENERGIA SL
12	100.00%	1	ENTE VASCO DE LA ENERGIA
13	100.00%	7	FACTOR ENERGIA SA
14	92.24%	1 (0.01) 6 (0.00) 13 (0.32) 16 (0.01) 60 (0.46) 87 (0.20)	FENIE ENERGIA, SA
15	100.00%	2	NATURGAS ENERGIA DISTRIBUCION SA
16	100.00%	17	EDP RENOVÁVEIS PORTUGAL, S.A.
17	100.00%	1	ARAGONESAS INDUSTRIAS Y ENERGIA SA (EXTINGUIDA)
18	100.00%	0	EIFFAGE ENERGIA SOCIEDAD LIMITADA
19	100.00%	0	IBERSOLAR ENERGIA SA (EXTINGUIDA)
20	97.26%	13 (0.36) 17 (0.01) 27 (0.54) 45 (0.09)	SARAS ENERGIA RED SA (EXTINGUIDA)
21	91.09%	1 (0.00) 6 (0.02) 16 (0.07) 32 (0.59) 45 (0.29) 315 (0.02)	SDV ENERGIA E INFRAESTRUCTURA SL.
22	100.00%	38	BIZKAIA ENERGIA SOCIEDAD LIMITADA
23	98.27%	1 (0.01) 15 (0.01) 36 (0.04) 59 (0.63) 60 (0.31)	OZ ENERGIA GÁS, S.A.
24	100.00%	0	VEOLIA SERVICIOS LECAM SA.
25	95.62%	6 (0.00) 13 (0.23) 16 (0.00) 22 (0.01) 30 (0.08) 45 (0.05) 63 (0.04) 87 (0.58)	BIOCOM ENERGIA SL
26	100.00%	0	MOLGAS ENERGIA SA
27	100.00%	46	ENERGIA DLR COMERCIALIZADORA SOCIEDAD LIMITADA.
28	93.31%	1 (0.00) 13 (0.10) 16 (0.00) 22 (0.01) 30 (0.08) 45 (0.06) 60 (0.75)	EFACEC DT - TRANSFORMADORES DE DISTRIBUIÇÃO DE ENERGIA, S.A.
29	100.00%	1	UNIELECTRICA ENERGIA SA
30	100.00%	6	ENAGAS TRANSPORTE DEL NORTE SOCIEDAD ANONIMA. (EXTINGUIDA)
31	100.00%	0	PRIMAGAS ENERGIA SA
32	100.00%	29	ENERGIAS RENOVABLES OPERACION & MANTENIMIENTO SL
33	97.69%	10 (0.01) 27 (0.59) 80 (0.02) 92 (0.02) 105 (0.36)	AURA ENERGIA SL.
34	88.80%	6 (0.01) 12 (0.03) 15 (0.03) 45 (0.62) 63 (0.06) 102 (0.17) 315 (0.09)	ESTABANELL Y PAHISA ENERGIA SA
35	78.10%	1 (0.00) 6 (0.01) 16 (0.00) 60 (0.17) 87 (0.82)	AGRI-ENERGIA SA
36	100.00%	4	GAS ENERGIA DISTRIBUCION CANTABRIA SA (EXTINGUIDA)
37	94.31%	1 (0.00) 6 (0.00) 13 (0.00) 16 (0.01) 36 (0.01) 53 (0.00) 59 (0.44) 60 (0.50) 87 (0.04)	SOLTEC ENERGIAS RENOVABLES SL
38	96.12%	1 (0.00) 27 (0.41) 52 (0.35) 60 (0.19) 182 (0.06)	AGUAS DE BARBASTRO ENERGIA SL
39	89.97%	1 (0.00) 6 (0.00) 16 (0.00) 60 (0.46) 87 (0.54)	RESUL - EQUIPAMENTOS DE ENERGIA, S.A.
40	84.79%	13 (0.04) 27 (0.26) 45 (0.00) 60 (0.05) 87 (0.37) 102 (0.28)	BONGÁS - ENERGIAS, S.A.
41	99.93%	22 (0.00) 27 (0.51) 32 (0.00) 138 (0.48)	DISCOMTES ENERGIA SL.
42	100.00%	1	REDEXIS GAS MURCIA SA.
43	100.00%	0	ORUS ENERGIA SL
44	100.00%	0	ALCANZIA ENERGIA SOCIEDAD LIMITADA.
45	100.00%	25	GDF SUEZ ENERGIA E SERVIÇOS PORTUGAL, S.A.
46	86.48%	1 (0.00) 27 (0.05) 32 (0.06) 60 (0.14) 78 (0.75)	DENEO ENERGIA E INFRAESTRUCTURAS SA (EXTINGUIDA)

47	51.86%	1 (0.00) 6 (0.00) 16 (0.01) 60 (0.46) 87 (0.53)	APLICACIONES TECNICAS DE LA ENERGIA SL
48	100.00%	0	HARDLEVEL - ENERGIAS RENOVÁVEIS, LDA
49	100.00%	2	RESPIRA ENERGIA SA.
50	85.74%	6 (0.00) 9 (0.00) 22 (0.00) 27 (0.30) 63 (0.00) 87 (0.26) 102 (0.41) 182 (0.03)	ENERCOLUZ ENERGIA SOCIEDAD LIMITADA.
51	74.76%	1 (0.00) 27 (0.10) 59 (0.24) 60 (0.30) 71 (0.14) 87 (0.09) 92 (0.11) 182 (0.01)	ABANTIA ENERGIA & MEDIO AMBIENTE S.A. (EXTINGUIDA)
52	100.00%	9	CANAL ENERGIA COMERCIALIZACION SL
53	100.00%	1	TERMISA ENERGIA SA
54	100.00%	4	SPINERG - SOLUÇÕES PARA ENERGIA, S.A.
55	97.14%	3 (0.00) 16 (0.00) 27 (0.23) 59 (0.08) 123 (0.69)	ELECTRA CALDENSE ENERGIA SA
56	100.00%	0	ENERFIN SOCIEDAD DE ENERGIA SL
57	80.04%	6 (0.00) 9 (0.00) 22 (0.00) 27 (0.17) 63 (0.25) 87 (0.05) 102 (0.53)	ELECTRA ENERGIA SA
58	33.28%	6 (0.01) 16 (0.00) 32 (0.00) 36 (0.07) 60 (0.02) 102 (0.56) 181 (0.33)	INSTITUTO TECNOLOGICO Y DE ENERGIAS RENOVABLES SA
59	100.00%	10	ENERGIAS DE LA MANCHA ENEMAN SA
60	100.00%	58	CÂNDIDO JOSÉ RODRIGUES II RENEWABLES, S.A.
61	100.00%	0	LCPOWER - LUÍS CARNEIRO, SOLUÇÕES DE ENERGIA, S.A.
62	95.35%	1 (0.00) 9 (0.00) 27 (0.07) 60 (0.08) 92 (0.85)	TERMOSUN ENERGIAS SOCIEDAD LIMITADA
63	100.00%	6	ENERGIA DE LA LOMA SOCIEDAD ANONIMA.
64	79.39%	1 (0.00) 22 (0.02) 30 (0.00) 60 (0.35) 87 (0.63)	AIRE Y ENERGIA DE ALQUILER S.L. (EXTINGUIDA)
65	100.00%	3	ANERPRO ENERGIA Y PROCESO SL.
66	100.00%	0	ID ENERGIA SOLAR SL
67	94.31%	1 (0.00) 27 (0.03) 32 (0.07) 78 (0.22) 169 (0.68)	R T R ENERGIA SL
68	82.80%	27 (0.12) 60 (0.05) 71 (0.07) 87 (0.05) 92 (0.21) 182 (0.50)	DISACE ENERGIA SL
69	60.14%	6 (0.00) 27 (0.04) 71 (0.04) 78 (0.08) 87 (0.14) 92 (0.70)	OTRAS PRODUCCIONES DE ENERGIA FOTOVOLTAICA SL
70	100.00%	0	ENERCONPOR - ENERGIAS RENOVÁVEIS DE PORTUGAL, SOCIEDADE UNIPESSOAL, LDA
71	100.00%	24	CRIAGÁS - ENERGIA E COMUNICAÇÕES, S.A.
72	100.00%	2	ROFEICA ENERGIA S.A.
73	82.18%	1 (0.00) 22 (0.00) 71 (0.06) 78 (0.48) 92 (0.07) 169 (0.16) 182 (0.23)	EDA INSTALACIONES Y ENERGIA SL
74	86.54%	1 (0.00) 22 (0.01) 59 (0.10) 71 (0.06) 169 (0.73) 182 (0.10)	CAPWATT COLOMBO - HEAT POWER, S.A.
75	91.27%	27 (0.08) 32 (0.02) 60 (0.03) 78 (0.07) 156 (0.02) 169 (0.78)	SOFOS ENERGIA SL
76	100.00%	2	DELSOL ENERGIA SL.
77	81.41%	13 (0.00) 16 (0.00) 36 (0.02) 45 (0.01) 59 (0.12) 87 (0.00) 92 (0.31) 102 (0.53)	ENERGIE EST, LDA
78	100.00%	40	IEDES ENERGIAS S.L.
79	74.42%	1 (0.00) 22 (0.00) 71 (0.20) 87 (0.04) 182 (0.76)	DASOLUZ ENERGIA SOLAR SL
80	100.00%	5	TAMOIN ENERGIAS RENOVABLES SL (EXTINGUIDA)
81	57.10%	22 (0.00) 32 (0.00) 71 (0.34) 78 (0.41) 92 (0.05) 169 (0.19)	INDARTEL ENERGIA Y COMUNICACION SL (EN LIQUIDACION)
82	91.12%	1 (0.00) 22 (0.00) 59 (0.13) 71 (0.03) 169	CAPWATT MAIA - HEAT POWER, S.A.

		(0.20) 182 (0.64)	
83	99.21%	27 (0.02) 45 (0.06) 54 (0.10) 60 (0.01) 92 (0.34) 181 (0.47)	ESTRUCTURAS PARA ENERGIAS RENOVABLES SL
84	100.00%	0	BUTANO Y ENERGIA DEL SURESTE SL
85	100.00%	0	ENERGIA DE MIAJADAS SA
86	85.39%	1 (0.00) 22 (0.00) 27 (0.03) 71 (0.20) 87 (0.03) 102 (0.05) 182 (0.69)	KPS SOLUCIONES EN ENERGIA SL.
87	100.00%	52	MOLTO ENERGIA, SL (EXTINGUIDA)
88	100.00%	0	SUNFLOWER ENERGIAS SL
89	94.25%	27 (0.05) 54 (0.02) 123 (0.21) 129 (0.72)	ZIDAC ENERGIAS SL.
90	64.51%	9 (0.00) 27 (0.05) 87 (0.15) 92 (0.14) 182 (0.66)	RELENHA - LAREIRAS E RECUPERADORES DAS ENERGIAS NATURAIS, LDA
91	64.38%	1 (0.00) 22 (0.00) 71 (0.22) 87 (0.02) 102 (0.15) 182 (0.61)	TERMICOL ENERGIA SOLAR SL
92	100.00%	35	EA - ENERGIA E AMBIENTE, S.A.
93	76.44%	27 (0.00) 60 (0.12) 80 (0.02) 92 (0.18) 105 (0.37) 182 (0.30)	ESTEYCO ENERGIA SL (EXTINGUIDA)
94	59.17%	27 (0.01) 78 (0.08) 87 (0.16) 92 (0.22) 102 (0.29) 182 (0.24)	TURBOMAR ENERGIA - EQUIPAMENTOS DE PRODUÇÃO E SERVIÇOS DE ASSISTÊNCIA, LDA
95	100.00%	0	WARIS ENERGIA SL
96	79.99%	6 (0.00) 16 (0.00) 30 (0.01) 32 (0.02) 102 (0.01) 181 (0.78) 315 (0.18)	VALL DE SOLLER ENERGIA SL
97	87.36%	27 (0.03) 87 (0.00) 92 (0.01) 123 (0.45) 137 (0.29) 182 (0.21)	LABOIL ENERGIA SOCIEDAD LIMITADA.
98	50.47%	60 (0.14) 71 (0.01) 87 (0.09) 92 (0.28) 256 (0.49)	NET PLAN - TELECOMUNICAÇÕES E ENERGIA, S.A.
99	51.56%	45 (0.02) 92 (0.57) 102 (0.08) 137 (0.02) 181 (0.15) 182 (0.16)	INGENIERIA DEL AGUA Y LA ENERGIA INAGEN SL
100	100.00%	0	ANER ENERGIA SOCIEDAD LIMITADA.
101	100.00%	0	ENERGIAS RENOVABLES Y DESARROLLOS ALTERNATIVOS SL
102	100.00%	38	GELLWEILER - SOCIEDADE DE REPRESENTAÇÕES, NOVAS ENERGIAS, S.A.
103	100.00%	2	CAPWATT, BRAINPOWER, S.A.
104	78.00%	1 (0.00) 22 (0.00) 78 (0.16) 182 (0.08) 262 (0.76)	MONTESOL ENERGIAS SL
105	100.00%	4	TERAWATT INTERNACIONAL - ENERGIA E COMUNICAÇÕES, S.A.
106	75.65%	22 (0.00) 27 (0.03) 63 (0.00) 72 (0.00) 87 (0.08) 102 (0.07) 182 (0.82)	MECAPISA PORTUGAL, ENERGIAS RENOVÁVEIS, LDA
107	45.59%	1 (0.00) 71 (0.24) 78 (0.01) 156 (0.68) 169 (0.06)	ENERGIA Y CONSTRUCCIONES SA
108	42.63%	45 (0.01) 60 (0.12) 71 (0.06) 87 (0.02) 92 (0.13) 182 (0.07) 256 (0.59)	EMTE MEDIO AMBIENTE Y ENERGIA SL (EXTINGUIDA)
109	100.00%	0	QENERGIA - SISTEMAS PARA QUALIDADE E GESTÃO DE ENERGIA, LDA
110	63.32%	1 (0.00) 22 (0.00) 60 (0.05) 78 (0.16) 102 (0.16) 182 (0.14) 262 (0.49)	ENERGIA Y MEDIOAMBIENTE COMBUSTION SL
111	47.43%	27 (0.01) 60 (0.14) 71 (0.01) 78 (0.01) 92 (0.00) 182 (0.83)	PSH ENERGIA SA
112	88.27%	27 (0.00) 54 (0.01) 60 (0.04) 87 (0.04) 92 (0.06) 123 (0.85)	S.G.T.TRADING, ENERGIA E CLIMATIZAÇÃO, LDA
113	63.12%	27 (0.00) 45 (0.00) 78 (0.23) 87 (0.04) 92 (0.05) 102 (0.03) 182 (0.64)	PROINSENER ENERGIA SLL.
114	62.30%	1 (0.00) 27 (0.02) 59 (0.00) 60 (0.03) 71 (0.04) 87 (0.08) 102 (0.03) 182 (0.81)	MARQUES & SOUSA - ENERGIA, S.A.
115	80.90%	22 (0.01) 27 (0.01) 59 (0.03) 72 (0.01) 102 (0.03) 182 (0.91)	CAPWATT VALE DO CAIMA - HEAT POWER, S.A.

116	91.66%	52 (0.05) 65 (0.04) 78 (0.14) 134 (0.00) 182 (0.28) 252 (0.49)	ECOSIONA ENERGIA SOCIEDAD LIMITADA.
117	100.00%	0	COMPAÑIA REGIONAL DE ENERGIA SOLAR SL
118	69.19%	45 (0.02) 60 (0.04) 87 (0.01) 102 (0.14) 137 (0.38) 181 (0.02) 182 (0.40)	QBEIRAS - ENERGIA, LDA
119	99.67%	22 (0.00) 27 (0.03) 138 (0.50) 229 (0.09) 309 (0.39)	NOVA ENERGIA ENERGIES RENOVABLES SL
120	60.44%	1 (0.00) 22 (0.00) 71 (0.04) 78 (0.02) 182 (0.94)	VALORAMA ENERGIA Y MEDIO AMBIENTE SA (EN LIQUIDACION)
121	69.34%	1 (0.00) 22 (0.00) 71 (0.09) 87 (0.12) 182 (0.79)	SELF ENERGY - SERVIÇOS DE ENERGIA, S.A.
122	61.99%	1 (0.00) 27 (0.01) 60 (0.05) 71 (0.01) 87 (0.00) 102 (0.03) 182 (0.90)	ESASUR ENERGIA EFICIENCIA E INSTALACIONES SOCIEDAD LIMITADA.
123	100.00%	12	INER ENERGIA CASTILLA LA MANCHA SOCIEDAD LIMITADA.
124	43.56%	1 (0.00) 22 (0.00) 60 (0.05) 71 (0.03) 78 (0.06) 182 (0.87)	AMBAR SEGURIDAD Y ENERGIA SOCIEDAD LIMITADA.
125	48.13%	16 (0.00) 22 (0.00) 92 (0.25) 102 (0.04) 181 (0.69) 182 (0.02)	ENERGIA SOLAR APLICADA SL
126	100.00%	1	EMPRESA MUNICIPAL DE DISTRIBUCIO D'ENERGIA ELECTRICA D'ALMENAR SL
127	42.16%	6 (0.00) 16 (0.00) 102 (0.19) 181 (0.74) 182 (0.06)	ENERGIAS FOTOVOLTAICAS DE NAVARRA SL
128	64.27%	45 (0.00) 71 (0.02) 78 (0.02) 87 (0.02) 92 (0.00) 102 (0.31) 182 (0.63)	RICHWORLD RENEWABLES - SISTEMAS DE ENERGIAS RENOVÁVEIS, LDA
129	100.00%	1	SOLJET ENERGIA SA
130	78.56%	27 (0.01) 32 (0.01) 78 (0.02) 92 (0.00) 156 (0.34) 181 (0.17) 182 (0.46)	ENERGIA CONTROLADA DEL MEDITERRANEO SL
131	54.94%	1 (0.00) 59 (0.02) 71 (0.01) 87 (0.05) 92 (0.04) 182 (0.89)	MIRA MADEIRA - ELECTRODOMÉSTICOS, CLIMATIZAÇÃO E ENERGIA, LDA
132	77.75%	32 (0.01) 60 (0.04) 92 (0.05) 178 (0.36) 181 (0.00) 182 (0.01) 229 (0.53)	GENERACION DE ENERGIA SOSTENIBLE SL
133	100.00%	3	BAJOCOSTE ENERGIAS SL
134	100.00%	7	ENERGIAS LIMPIAS Y PRODUCTOS ENERGETICOS ELIOS SL
135	78.30%	32 (0.02) 45 (0.01) 60 (0.00) 78 (0.06) 80 (0.04) 182 (0.06) 296 (0.81)	INSTALS SERVICIOS DE ELECTRICIDAD Y ENERGIA SOLAR SL
136	60.03%	30 (0.00) 42 (0.00) 63 (0.05) 102 (0.05) 182 (0.90)	ENERGIA SOLAR SL
137	100.00%	18	COGERPOWER, LDA
138	100.00%	16	JESFRAN ENERGIA SL.
139	100.00%	7	ENERGIAS INTENSIVAS S.L. (EXTINGUIDA)
140	100.00%	0	MOEE - MANUTENÇÃO E OPERAÇÃO DE ENERGIA EÓLICA, S.A.
141	100.00%	1	MIPROM ENERGIA SL
142	100.00%	0	MES - ENERGIAS SOLARES, UNIPESSOAL, LDA
143	52.70%	1 (0.00) 22 (0.00) 60 (0.01) 102 (0.13) 182 (0.75) 262 (0.11)	ALTARE ENERGIA SA.
144	48.47%	45 (0.00) 60 (0.04) 78 (0.01) 102 (0.07) 182 (0.70) 256 (0.18)	SILVASOL ENERGIA SISTEMAS Y SERVICIOS SA
145	66.31%	32 (0.00) 52 (0.01) 78 (0.02) 80 (0.02) 134 (0.07) 182 (0.88)	ENERNEL - SISTEMAS DE ENERGIA, LDA
146	100.00%	1	LLEDO ENERGIA SL
147	82.50%	87 (0.04) 92 (0.19) 123 (0.11) 256 (0.54) 302 (0.13)	VIA SOLAR - ENERGIA SOLAR E AQUECIMENTOS, LDA
148	93.79%	27 (0.02) 54 (0.02) 92 (0.01) 123 (0.03) 302 (0.92)	COMPAÑIA LUMISA ENERGIAS SL.

149	99.45%	22 (0.00) 27 (0.02) 169 (0.10) 182 (0.19) 229 (0.12) 251 (0.04) 297 (0.49) 312 (0.03)	CARLOTENAS DE ENERGIA SLL.
150	46.58%	22 (0.00) 30 (0.00) 87 (0.07) 102 (0.02) 169 (0.03) 182 (0.88)	ARIDOS ENERGIAS ESPECIALES SL (EXTINGUIDA)
151	84.71%	32 (0.00) 60 (0.03) 78 (0.03) 103 (0.13) 182 (0.01) 236 (0.34) 261 (0.47)	ENERGIA FORESTAL DEL SUR SL
152	75.55%	27 (0.00) 32 (0.01) 78 (0.03) 134 (0.04) 182 (0.40) 256 (0.39) 296 (0.13)	AE PLUS ACTIVA ENERGIA MANTENIMIENTOS SL
153	35.78%	22 (0.00) 71 (0.03) 87 (0.06) 102 (0.06) 182 (0.47) 262 (0.38)	SINAPSE ENERGIA SOCIEDAD LIMITADA
154	31.55%	45 (0.00) 60 (0.00) 87 (0.08) 137 (0.02) 181 (0.03) 182 (0.84) 256 (0.02)	IMASD ENERGIAS SOCIEDAD LIMITADA
155	77.65%	27 (0.01) 32 (0.01) 60 (0.01) 137 (0.02) 156 (0.15) 182 (0.13) 256 (0.68)	GORRIKO ENERGIA SL
156	100.00%	5	EMPRESA MUNICIPAL D'ENERGIA ELECTRICA TORRES DE SEGRE S.L.
157	88.21%	2 (0.00) 22 (0.00) 27 (0.01) 123 (0.05) 182 (0.41) 330 (0.53)	ENERGIAS RUIMAR SL
158	62.09%	1 (0.00) 3 (0.00) 182 (0.93) 262 (0.05) 297 (0.02)	CARBON VERDE ENERGIA SL.
159	60.48%	60 (0.04) 137 (0.18) 182 (0.37) 256 (0.28) 296 (0.13)	KW - ALTERNATIVAS EM ENERGIA, LDA
160	100.00%	0	RECUPERACION DE ENERGIA SA
161	100.00%	0	ENERGIAS RENOVABLES SUR ENERGY ONTUR SL
162	79.58%	1 (0.00) 60 (0.04) 78 (0.03) 182 (0.13) 262 (0.01) 296 (0.80)	ALTERNATIVE 4U - ENERGIAS RENOVÁVEIS, S.A.
163	72.66%	92 (0.04) 137 (0.44) 139 (0.09) 181 (0.04) 301 (0.22) 302 (0.17)	SERTÃSOL - SOCIEDADE DE APROVEITAMENTO DE ENERGIA, LDA
164	47.66%	60 (0.01) 71 (0.02) 87 (0.02) 102 (0.12) 182 (0.17) 256 (0.21) 262 (0.46)	TRATAMIENTOS ESPECIALES PARA ENERGIA RENOVABLE SL (EN LIQUIDACION)
165	72.51%	32 (0.01) 92 (0.02) 139 (0.20) 181 (0.09) 211 (0.27) 256 (0.41)	CALDERERIA Y ENERGIA SOLAR SL
166	79.09%	60 (0.00) 137 (0.35) 139 (0.08) 181 (0.11) 211 (0.31) 256 (0.09) 302 (0.05)	FONSA INSTALACIONES Y ENERGIAS RENOVABLES SL
167	100.00%	2	MONTADORES AGRUPADOS FONTANERIA ENERGIA Y CALEFACCION SL (EN LIQUIDACION)
168	99.85%	138 (0.64) 139 (0.01) 169 (0.03) 312 (0.08) 326 (0.23)	LED ENERGIA CANARIAS SOCIEDAD LIMITADA.
169	100.00%	26	CASTELLANA DE ENERGIA RENOVABLE SL
170	66.68%	1 (0.00) 52 (0.01) 78 (0.07) 182 (0.22) 296 (0.71)	NORTESOL ENERGIAS RENOVABLES SL
171	99.80%	22 (0.00) 32 (0.00) 138 (0.49) 229 (0.40) 309 (0.06) 312 (0.05)	SUNTELCO ENERGIAS RENOVABLES SL
172	64.08%	1 (0.00) 78 (0.05) 182 (0.44) 262 (0.38) 296 (0.13)	CLIMATIZACION E INSTALACIONES DE NUEVAS ENERGIAS DE CANTABRIA S L (EN LIQUIDACION)
173	99.01%	22 (0.00) 32 (0.01) 138 (0.10) 229 (0.76) 309 (0.04) 312 (0.08)	SOLIDA ENERGIAS RENOVABLES SL
174	85.07%	1 (0.00) 78 (0.01) 182 (0.63) 262 (0.31) 296 (0.05)	SUMA ENERGIA ECOFIRE SL.
175	75.16%	92 (0.08) 123 (0.16) 182 (0.09) 256 (0.49) 302 (0.17)	ENERGIA RIVEIRA, SA
176	63.71%	22 (0.00) 78 (0.01) 102 (0.04) 182 (0.72) 261 (0.22) 262 (0.01)	RECINER ENERGIA SL.
177	60.10%	32 (0.00) 156 (0.12) 169 (0.58) 229 (0.08) 256 (0.09) 312 (0.12)	SOL ETERNO - ENERGIA SOLAR, LDA

178	100.00%	2	COGESMA ENERGIA Y PROYECTOS SL.
179	53.04%	60 (0.01) 78 (0.03) 182 (0.50) 262 (0.17) 296 (0.29)	FUNDILAR - CLIMATIZAÇÃO E ENERGIAS RENOVÁVEIS, LDA
180	41.05%	87 (0.10) 169 (0.02) 181 (0.06) 182 (0.13) 256 (0.70) 315 (0.01)	CONSULTORA DE ENERGIAS RENOVABLES, SOCIEDAD ANONIMA
181	100.00%	24	OPTIMA ENERGIA SL
182	100.00%	108	VARONA ENERGIA S.L.
183	95.73%	29 (0.01) 105 (0.02) 146 (0.17) 182 (0.06) 302 (0.74)	CELTICA ENERGIA SL
184	33.59%	60 (0.01) 87 (0.04) 92 (0.03) 182 (0.27) 256 (0.66)	BELSOLAR - COMÉRCIO DE EQUIPAMENTOS DE ENERGIA SOLAR, LDA
185	45.41%	22 (0.00) 169 (0.13) 181 (0.04) 182 (0.35) 256 (0.46) 267 (0.02)	AEMA SERVICIOS ENERGETICOS SOCIEDAD LIMITADA.
186	46.28%	60 (0.01) 78 (0.01) 102 (0.01) 182 (0.67) 256 (0.08) 261 (0.22) 296 (0.00)	CLIM FONT Y ENERGIA ALMERIA SL
187	50.44%	60 (0.00) 65 (0.00) 78 (0.01) 182 (0.80) 296 (0.18)	PLURIGÁS SOLAR ENERGIAS, LDA
188	85.84%	78 (0.08) 102 (0.00) 182 (0.15) 261 (0.47) 279 (0.30)	ENERGIA LOCAL EMPRESA DE SERVICIOS ENERGETICOS SL.
189	62.87%	45 (0.01) 60 (0.01) 87 (0.01) 92 (0.00) 137 (0.13) 169 (0.03) 302 (0.79)	ENAP ENERGIA SL
190	47.36%	32 (0.00) 45 (0.01) 60 (0.00) 137 (0.09) 182 (0.31) 256 (0.48) 261 (0.06) 296 (0.06)	SIMPROF SISTEMAS DE ENERGIA SL.
191	99.82%	27 (0.00) 32 (0.00) 76 (0.00) 134 (0.11) 138 (0.16) 309 (0.51) 312 (0.22)	TRESOLAR ENERGIAS ANDALUZAS SL
192	47.73%	60 (0.00) 78 (0.03) 102 (0.01) 182 (0.36) 256 (0.28) 262 (0.30) 296 (0.01)	SOLCAM ENERGIA SOCIEDAD LIMITADA.
193	100.00%	0	RUSTARAZO ENERGIA SOCIEDAD LIMITADA.
194	44.12%	22 (0.00) 102 (0.01) 182 (0.73) 256 (0.13) 261 (0.04) 262 (0.08)	GERAFLUXO - SOLUÇÕES DE ENERGIA, LDA
195	33.82%	60 (0.02) 71 (0.00) 87 (0.01) 182 (0.33) 256 (0.47) 262 (0.17)	C.M.CUSTODIO - CLIMATIZAÇÃO, NOVAS ENERGIAS, LDA
196	60.32%	1 (0.00) 60 (0.00) 78 (0.00) 182 (0.44) 262 (0.13) 296 (0.42)	PORTONATURAL - ENERGIAS NATURAIS, LDA
197	65.66%	27 (0.01) 60 (0.02) 92 (0.00) 182 (0.05) 256 (0.36) 302 (0.57)	DIGNO MESTRE - NOVAS ENERGIAS, LDA
198	67.14%	60 (0.00) 80 (0.05) 182 (0.32) 252 (0.29) 296 (0.25) 302 (0.08)	LOSNA ENERGIA, S.A.
199	91.77%	32 (0.00) 141 (0.19) 169 (0.06) 256 (0.74)	ISEL ENERGIA SL
200	94.24%	138 (0.14) 139 (0.06) 169 (0.05) 182 (0.21) 229 (0.18) 256 (0.35) 296 (0.01)	IP INSTALACIONES MONTAJES Y ENERGIAS SL
201	86.10%	45 (0.02) 169 (0.32) 301 (0.23) 323 (0.44)	ATLAS SEIS II - SISTEMAS DE ENERGIA PARA A INDÚSTRIA E SERVIÇOS, LDA
202	82.26%	27 (0.00) 45 (0.00) 92 (0.07) 105 (0.06) 302 (0.86)	ENERGIAS FARMONI SA
203	38.24%	32 (0.00) 60 (0.02) 102 (0.07) 103 (0.03) 256 (0.42) 296 (0.46)	SIST AVAN ATS ENERGIA SOLAR TERMICA S.C.C.L.
204	38.89%	45 (0.00) 87 (0.00) 137 (0.01) 181 (0.09) 182 (0.43) 256 (0.47)	ELECTRO ALBI - CLIMATIZAÇÃO E ENERGIAS ALTERNATIVAS, LDA
205	77.98%	2 (0.00) 60 (0.02) 133 (0.02) 137 (0.06) 182 (0.30) 296 (0.61)	MGLS - SOLUÇÕES DE ENERGIAS RENOVÁVEIS, LDA
206	66.92%	133 (0.05) 137 (0.16) 182 (0.17) 211 (0.07) 256 (0.53) 346 (0.02)	OZ ENERGIA CANALIZADO, LDA
207	100.00%	0	ENERGIA ALTERNATIVA BALEAR SL
208	100.00%	3	COMPAÑIA INTERNACIONAL DE SERVICIOS PARA TECNOLOGIA ENERGIA
209	96.77%	32 (0.00) 138 (0.30) 229 (0.30) 309 (0.21)	ASOLEC PUERTAS ELECTRICIDAD Y

		312 (0.19)	ENERGIA ALTERNATIVA SL
210	88.10%	60 (0.01) 137 (0.13) 138 (0.01) 139 (0.03) 256 (0.57) 296 (0.14) 302 (0.11)	TF ENERGIA SOCIEDAD LIMITADA.
211	100.00%	6	IBIZA ENERGIAS ALTERNATIVAS SL
212	75.04%	1 (0.00) 78 (0.01) 182 (0.09) 262 (0.65) 296 (0.25)	BITALIA ENERGIA NATURAL SL.
213	97.13%	27 (0.01) 229 (0.44) 306 (0.22) 312 (0.33)	TONDO ENERGIA SL.
214	65.59%	45 (0.02) 60 (0.01) 181 (0.10) 256 (0.06) 302 (0.73) 346 (0.09)	CONTER CONTROL DE ENERGIA SA
215	82.13%	45 (0.01) 87 (0.01) 123 (0.13) 137 (0.03) 271 (0.07) 301 (0.38) 302 (0.37)	ENATIC - ENERGIAS NATURAIS INSTALAÇÃO E COMÉRCIO, UNIPESSOAL, LDA
216	99.93%	27 (0.01) 167 (0.15) 297 (0.24) 309 (0.06) 312 (0.53)	ENERGIAS DERIVADAS DE BIOMASA SL.
217	98.05%	138 (0.30) 169 (0.07) 312 (0.61) 326 (0.01)	MONTAJES INDUSTRIALES CLIMA ELECTRICIDAD ENERGIA SOLAR SL
218	96.98%	138 (0.32) 296 (0.39) 297 (0.23) 303 (0.02) 324 (0.05)	ENERCOM ENERGIA Y EQUIPAMIENTOS S.L.
219	64.65%	22 (0.00) 32 (0.00) 126 (0.06) 133 (0.00) 169 (0.06) 251 (0.86) 256 (0.02)	GAMO ENERGIAS SL.
220	61.88%	52 (0.00) 65 (0.03) 78 (0.00) 182 (0.02) 252 (0.14) 296 (0.80)	BESA ENERGIA SL
221	100.00%	0	FRANCISCO ESPINOSA Y ASOCIADOS SERVICIOS DE GESTION DE ENERGIA S.L.
222	29.47%	87 (0.03) 182 (0.30) 256 (0.41) 330 (0.27)	GENERAL DE TELECOMUNICACION Y ENERGIA SA
223	60.12%	78 (0.02) 134 (0.03) 167 (0.01) 182 (0.29) 261 (0.03) 296 (0.36) 302 (0.25)	DISTRIBUIDORA ARAGONESA DE TELECOMUNICACIONES ENERGIA
224	99.80%	22 (0.00) 32 (0.00) 138 (0.36) 229 (0.17) 309 (0.15) 312 (0.32)	CLIBUR ENERGIAS Y SERVICIOS SL
225	99.67%	32 (0.00) 138 (0.24) 229 (0.02) 309 (0.04) 312 (0.70)	ANBEMA ENERGIA SOLUCIONES TECNICAS INTEGRALES SL
226	81.83%	45 (0.01) 60 (0.01) 87 (0.02) 301 (0.11) 323 (0.84)	REDESADO - ENERGIA E COMUNICAÇÕES, LDA
227	89.92%	52 (0.02) 182 (0.07) 208 (0.11) 275 (0.03) 306 (0.03) 330 (0.73)	SONERFÁTIMA - COMÉRCIO DE PRODUTOS PARA ENERGIAS RENOVÁVEIS DE FÁTIMA, LDA
228	100.00%	0	TEKNER ENERGIA SOCIEDAD LIMITADA.
229	100.00%	16	AMG ENERGIA Y TELECOMUNICACIONES SL.
230	43.15%	60 (0.02) 78 (0.00) 182 (0.07) 262 (0.45) 296 (0.46)	SINERGIAE - ENGENHARIA, LDA
231	46.09%	87 (0.04) 169 (0.06) 182 (0.18) 256 (0.20) 315 (0.08) 342 (0.44)	ACTIVOS EN RENTA ENERGIA SA
232	40.10%	60 (0.00) 182 (0.26) 256 (0.37) 262 (0.27) 296 (0.10)	BERCIANA DE ENERGIA SOLAR SL
233	90.97%	27 (0.01) 134 (0.05) 296 (0.09) 297 (0.09) 306 (0.03) 312 (0.73)	EDECO ENERGIAS SL
234	59.26%	182 (0.42) 262 (0.00) 296 (0.41) 297 (0.07) 317 (0.03) 325 (0.06)	ESTUDENER ENERGIAS RENOVABLES SL
235	99.04%	16 (0.00) 22 (0.00) 256 (0.66) 267 (0.14) 343 (0.20)	POVEDA ENERGIA SOCIEDAD LIMITADA
236	100.00%	1	ENERGIA CLIMATIZACION Y TELECOMUNICACIONES SL
237	100.00%	0	VAGALUME ENERGIA SL.
238	100.00%	1	ENERGIAS REUNIDAS SL
239	62.08%	52 (0.00) 182 (0.31) 252 (0.10) 296 (0.26) 302 (0.33)	DERN - DOMÓTICA E ENERGIAS RENOVÁVEIS, LDA
240	30.38%	182 (0.21) 229 (0.00) 256 (0.64) 330 (0.15)	RELEVE - RECURSOS ENERGÉTICOS, LDA

241	100.00%	0	TECNOLOGIA DE LA ENERGIA ELECTRICA SOCIEDAD ANONIMA LABORAL
242	99.87%	76 (0.00) 134 (0.09) 138 (0.11) 296 (0.08) 306 (0.08) 312 (0.63)	ARAGONESA DE CLIMATIZACION ENERGIA Y SERVICIOS SL.
243	20.55%	102 (0.00) 178 (0.05) 181 (0.03) 256 (0.92)	GABINETE ECONOMICO CONSULTOR DE ENERGIA SL
244	100.00%	0	AURA SOLAR INGENIERIA DE ENERGIAS RENOVABLES SL
245	63.65%	45 (0.00) 181 (0.04) 182 (0.16) 211 (0.00) 261 (0.35) 302 (0.13) 323 (0.32)	ZONTAK ENERGIA SL
246	44.13%	78 (0.01) 182 (0.06) 256 (0.52) 261 (0.18) 262 (0.10) 296 (0.14)	GEYSE ENERGIA SLL
247	47.00%	87 (0.00) 182 (0.35) 256 (0.05) 262 (0.17) 330 (0.43)	MOTO ENERGIA - MOTOS, LDA
248	59.63%	182 (0.34) 262 (0.20) 297 (0.08) 317 (0.01) 325 (0.37)	SATIS ENERGIAS RENOVABLES SL
249	40.45%	16 (0.00) 87 (0.02) 169 (0.01) 182 (0.29) 256 (0.09) 330 (0.60)	GSMK - GESTÃO ENERGIA, LDA
250	66.64%	49 (0.01) 52 (0.00) 78 (0.00) 182 (0.01) 262 (0.11) 296 (0.87)	ACTIVA ENERGIAS RENOVABLES SL
251	100.00%	4	KREA ENERGIA RENOVABLE SL.
252	100.00%	4	CONSULTORIA TECNICA E INSTALACIONES DE ENERGIAS RENOVABLES SL.
253	63.16%	182 (0.28) 229 (0.21) 302 (0.06) 330 (0.45)	MOVITROM - MANUTENÇÃO E SISTEMAS DE ENERGIA, LDA
254	84.40%	27 (0.00) 208 (0.05) 272 (0.15) 275 (0.03) 296 (0.01) 302 (0.67) 306 (0.08)	TECNOLOGIA COMUNICACIONES Y ENERGIA SL
255	99.83%	32 (0.00) 138 (0.02) 229 (0.81) 309 (0.08) 312 (0.09)	INGENIERIA DE ENERGIA Y MEDIO AMBIENTE INGEMA SL
256	100.00%	66	ORUM ENERGIA SL.
257	100.00%	1	ENERGIA RENOVABLE SOLDEHOGAR SL
258	100.00%	0	BIO SOLAR II - ENERGIAS RENOVAVEIS, LDA
259	96.88%	22 (0.00) 27 (0.00) 169 (0.12) 251 (0.15) 312 (0.37) 331 (0.36)	ENERGIA PIÑERO SL
260	100.00%	0	FUTURE NUEVAS ENERGIAS SL
261	100.00%	15	SOLSTROM ENERGIA SL
262	100.00%	24	WINTER WINDS - PROJECTOS DE ENERGIAS RENOVÁVEIS, LDA
263	100.00%	0	ENERGIA AL CUBO DEL NORTE SOCIEDAD LIMITADA.
264	64.70%	102 (0.02) 182 (0.24) 261 (0.11) 279 (0.25) 348 (0.38)	NEXTENERGY - EQUIPAMENTOS PARA ENERGIAS RENOVÁVEIS, UNIPESSOAL, LDA
265	54.59%	78 (0.01) 102 (0.00) 182 (0.02) 256 (0.21) 261 (0.21) 262 (0.16) 296 (0.40)	WHITE STAFF CUBIC - INTEGRATED SOLUTIONS, LDA
266	87.70%	102 (0.03) 181 (0.08) 211 (0.23) 261 (0.04) 323 (0.17) 346 (0.45)	ENERGIA MANTENIMIENTO CLIMATIZACION JESUS MOYA SL
267	100.00%	2	INPECUARIAS ENERGIA SL
268	48.33%	182 (0.05) 229 (0.31) 256 (0.32) 330 (0.33)	AECA ENERGIA SOLAR SL
269	77.84%	27 (0.00) 52 (0.00) 182 (0.09) 208 (0.01) 275 (0.25) 302 (0.51) 330 (0.14)	NERTECA - ENERGIAS RENOVÁVEIS, LDA
270	67.78%	87 (0.02) 92 (0.03) 123 (0.01) 137 (0.04) 302 (0.05) 338 (0.00) 342 (0.85)	ARIEMA ENERGIA Y MEDIOAMBIENTE SL
271	100.00%	1	AEROESSÊNCIA - ENERGIAS RENOVÁVEIS, LDA
272	100.00%	1	ZASEL PROYECTOS Y SERVICIOS SOCIEDAD LIMITADA.
273	100.00%	0	KARMACAR ENERGIAS E INSTALACIONES SL

274	60.13%	27 (0.00) 251 (0.08) 256 (0.35) 297 (0.21) 312 (0.24) 326 (0.12)	HABIECOLÓGICA - AQUECIMENTO E ENERGIAS RENOVÁVEIS, LDA
275	100.00%	4	RVD ENERGIAS RENOVABLES SL
276	73.30%	32 (0.00) 182 (0.02) 256 (0.20) 296 (0.20) 302 (0.20) 323 (0.37)	A Y F ENERGIA SL
277	75.32%	169 (0.07) 182 (0.17) 308 (0.18) 315 (0.04) 331 (0.12) 342 (0.42)	APLICACIONES ECOLOGICAS DE LA ENERGIA SL
278	99.82%	138 (0.06) 139 (0.05) 169 (0.00) 296 (0.08) 312 (0.22) 326 (0.59)	PUNTO ENERGIA SL
279	100.00%	2	COMERCIALITZADORA D'ALTA TENSIO I ENERGIA SL
280	60.85%	256 (0.10) 261 (0.15) 284 (0.09) 296 (0.33) 302 (0.33) 323 (0.00)	A M R ENERGIA SL
281	57.75%	123 (0.00) 182 (0.13) 256 (0.15) 296 (0.11) 325 (0.22) 332 (0.22) 346 (0.17)	ENERPLURAL - SISTEMAS DE ENERGIA E CLIMATIZAÇÃO, UNIPESSOAL, LDA
282	65.85%	87 (0.01) 92 (0.00) 137 (0.02) 256 (0.24) 302 (0.24) 338 (0.29) 342 (0.19)	ASESORAMIENTO DE USUARIOS DE ENERGIA SA
283	34.47%	181 (0.07) 182 (0.03) 256 (0.27) 325 (0.35) 347 (0.02) 348 (0.26)	HIDROENERGIAS - AGRICULTURA E ENERGIA, LDA
284	100.00%	3	MIZAR ENERGIA SL.
285	100.00%	0	DAICOR ENERGIA SL
286	71.67%	182 (0.11) 296 (0.37) 297 (0.05) 302 (0.23) 330 (0.13) 346 (0.12)	ENDU - ENERGIAS EDUCATIVAS, LDA
287	57.49%	123 (0.04) 256 (0.25) 330 (0.47) 332 (0.16) 346 (0.08)	ENERGIA CALORIFICA SL
288	98.88%	181 (0.00) 238 (0.23) 256 (0.29) 341 (0.03) 348 (0.45)	GREAT ENERGY - GESTÃO DE PROJECTOS DE ENGENHARIA, LDA
289	49.20%	261 (0.22) 284 (0.04) 296 (0.63) 346 (0.11)	ENERGIA VALENCIANA SL
290	59.30%	87 (0.00) 137 (0.05) 256 (0.24) 302 (0.06) 338 (0.47) 342 (0.02) 346 (0.16)	TECNOLOGY ENERGIAS RENOVABLES Y CONFORT SL
291	60.42%	22 (0.00) 256 (0.37) 296 (0.13) 326 (0.42) 331 (0.01) 346 (0.06)	AMÂGO - ENERGIA INTELIGENTE, UNIPESSOAL, LDA
292	55.90%	60 (0.01) 256 (0.16) 302 (0.05) 323 (0.02) 330 (0.76)	NELSON MARQUES & CARVALHO - ENERGIA E SEGURANÇA, LDA
293	36.94%	181 (0.02) 182 (0.10) 256 (0.25) 345 (0.59) 348 (0.04)	INTEGRALIA ENERGIA INSTALACIONES SOCIEDAD LIMITADA.
294	100.00%	0	KINERGIA ENERGIA INGENIERIA Y CONSULTORIA SL
295	47.60%	181 (0.01) 182 (0.07) 256 (0.31) 325 (0.14) 345 (0.40) 348 (0.08)	SOLTOTAL - FABRICAÇÃO DE APARELHOS DE CAPTAÇÃO DE ENERGIA SOLAR, LDA
296	100.00%	48	ENERGIAS RENOVABLES KOLER SOLUCIONES TECNOLOGICAS SLNE
297	100.00%	14	ENERGIAS NATURALES CASTILLA SL
298	100.00%	0	IUNER ENERGIA SOCIEDAD LIMITADA.
299	60.13%	256 (0.21) 297 (0.21) 312 (0.06) 324 (0.27) 326 (0.25)	LUZSOLAR - ENERGIAS ALTERNATIVAS, LDA
300	37.46%	256 (0.36) 296 (0.12) 330 (0.52)	ENERGYBAND - NOVAS ENERGIAS, LDA
301	100.00%	4	CALEFACCION Y ENERGIA SOLAR PEPE SL
302	100.00%	27	APLICACIONES TECNICAS PARA ENERGIAS Y FLUIDOS SOCIEDAD LIMITADA.
303	100.00%	1	ECOLUX PROYECTOS INTEGRALES DE ENERGIA SOLAR SL (EXTINGUIDA)
304	60.98%	22 (0.00) 256 (0.15) 296 (0.28) 297 (0.18) 326 (0.13) 331 (0.06) 346 (0.21)	ENE ENERGIAS - ELECTRICIDADE E ENERGIAS RENOVÁVEIS, LDA
305	58.94%	182 (0.05) 256 (0.12) 308 (0.20) 330 (0.19) 332 (0.32) 342 (0.12)	GODAY ENERGIA SL.
306	100.00%	5	CENTRO ORIOLANO DE ENERGIAS RENOVABLES SL

307	100.00%	0	TECNICAS E INVESTIGACIONES SOBRE ENERGIAS RENOVABLES SL
308	100.00%	2	ENERGIA VERDE VALLE S.L.
309	100.00%	10	AMB ENERGIAS Y SERVICIOS SL.
310	98.41%	169 (0.01) 211 (0.01) 275 (0.17) 296 (0.40) 338 (0.41)	BENJAN ENERGIAS RENOVABLES SOCIEDAD LIMITADA
311	99.93%	296 (0.34) 297 (0.30) 309 (0.11) 312 (0.24)	SAN CRISTOBAL ENERGIA SOLAR SL
312	100.00%	20	ENERGIAS RENOVABLES TOLOSA SL.
313	33.15%	256 (0.33) 339 (0.06) 345 (0.14) 346 (0.47)	ASURMENDI SISTEMAS DE ENERGIA SL
314	100.00%	0	ENERGIA VERDA CATALANA 2013 SL
315	100.00%	6	ENERGIA ACTIVA SL
316	97.18%	261 (0.14) 284 (0.04) 296 (0.35) 346 (0.48)	INGENIA SERVICIOS Y GESTION DE ENERGIA SL
317	100.00%	2	CEYMAR ENERGIA SL
318	34.98%	102 (0.01) 182 (0.00) 256 (0.23) 345 (0.12) 346 (0.58) 348 (0.06)	GARCIA SANCHEZ ENERGIA Y MEDIOAMBIENTE S.L.L.
319	65.57%	182 (0.01) 256 (0.12) 296 (0.02) 323 (0.02) 325 (0.05) 330 (0.60) 346 (0.19)	ENERGIA SOLAR DE BADAJOZ SL
320	94.47%	49 (0.00) 257 (0.09) 297 (0.11) 325 (0.07) 328 (0.49) 346 (0.24)	ENERFLAVI - INSTALAÇÕES DE ELECTRICIDADE E ENERGIA, UNIPESSOAL, LDA
321	54.41%	256 (0.28) 296 (0.33) 330 (0.38)	LIDERSOL - TÉCNICAS DE ENERGIA, LDA
322	100.00%	0	EMIRA ENERGIA E INSTALACIONES SOCIEDAD LIMITADA.
323	100.00%	8	INGENIERIA ELECTRICIDAD Y ENERGIA SOLAR SLL
324	100.00%	2	JOTA DOS INGENIEROS ENERGIA PROYECTOS SIMULACIONES SL.
325	100.00%	8	DOMORENOVA - ENERGIAS RENOVÁVEIS, UNIPESSOAL, LDA
326	100.00%	7	ENERGIAS ALTERNATIVAS FERROSOL SL
327	84.62%	296 (0.26) 297 (0.10) 302 (0.06) 328 (0.17) 330 (0.34) 332 (0.07)	CANSOL - INSTALAÇÕES PARA CAPTAÇÃO DE ENERGIA SOLAR, UNIPESSOAL, LDA
328	100.00%	2	VALORMÉTODO ENERGIAS E SISTEMAS, LDA
329	64.20%	87 (0.00) 169 (0.00) 256 (0.00) 325 (0.24) 330 (0.38) 342 (0.37) 349 (0.00)	GESTINVENTO - ENERGIAS E REPRESENTAÇÕES DE EQUIPAMENTOS, LDA
330	100.00%	21	NEOESFERA - COMERCIO DE SISTEMAS DE CLIMATIZAÇÃO E ENERGIAS RENOVAVEIS, LDA
331	100.00%	4	FONTANERIA Y ENERGIA SOLAR SL
332	100.00%	5	CANOPINA - CANALIZAÇÕES ENERGIA SOLAR, LDA
333	65.96%	256 (0.15) 339 (0.24) 345 (0.14) 346 (0.27) 347 (0.20)	SYCO INTEGRACION DE SISTEMAS GESTION DE ENERGIA SEGURIDAD SRL
334	79.48%	256 (0.03) 330 (0.43) 332 (0.22) 342 (0.09) 346 (0.23)	FABERSOLAR ENERGIAS RENOVABLES SOCIEDAD LIMITADA
335	53.31%	229 (0.01) 296 (0.12) 330 (0.87)	INSTITUTO DE ENERGIAS RENOVABLES SL
336	34.91%	256 (0.06) 330 (0.31) 346 (0.31) 347 (0.31)	ENERSTOCK - MATERIAL PARA ENERGIAS, LDA
337	100.00%	0	AQUECIMPORT - ENERGIAS RENOVÁVEIS, UNIPESSOAL, LDA
338	100.00%	4	SOLARTRIS ENERGIA SOLAR SL
339	100.00%	2	ERA CRIADORA - ENERGIAS RENOVÁVEIS, LDA
340	100.00%	1	SIGMA ENERGIAS ALTERNATIVAS SL

341	100.00%	1	TECSAR ENERGIAS RENOVABLES SOCIEDAD LIMITADA
342	100.00%	8	ENERMULTI - SISTEMAS DE ENERGIA, UNIPESSOAL, LDA
343	100.00%	2	ENERGIAS ALTERNATIVAS TAV SL
344	100.00%	340 (0.01) 343 (0.98) 348 (0.01) 349 (0.00)	KAPPA ENERGIAS RENOVABLES SL
345	100.00%	5	DELTA INGENIERIA ENERGIAS RENOVABLES SL
346	100.00%	18	ENERGIA Y DESARROLLO EGARA SL
347	100.00%	3	FINISHSTRONG - ENERGIAS RENOVÁVEIS, LDA
348	100.00%	7	NUEVA ENERGIAS LAMBDA SL
349	100.00%	2	ARLES ENERGIAS ALTERNATIVAS SL