Possible regulatory incentives for increasing RES-E penetration and energy eficiency in the Canary Islands

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Items

1. Main characteristics of the Spanish isolated systems
2. Installed capacity and production
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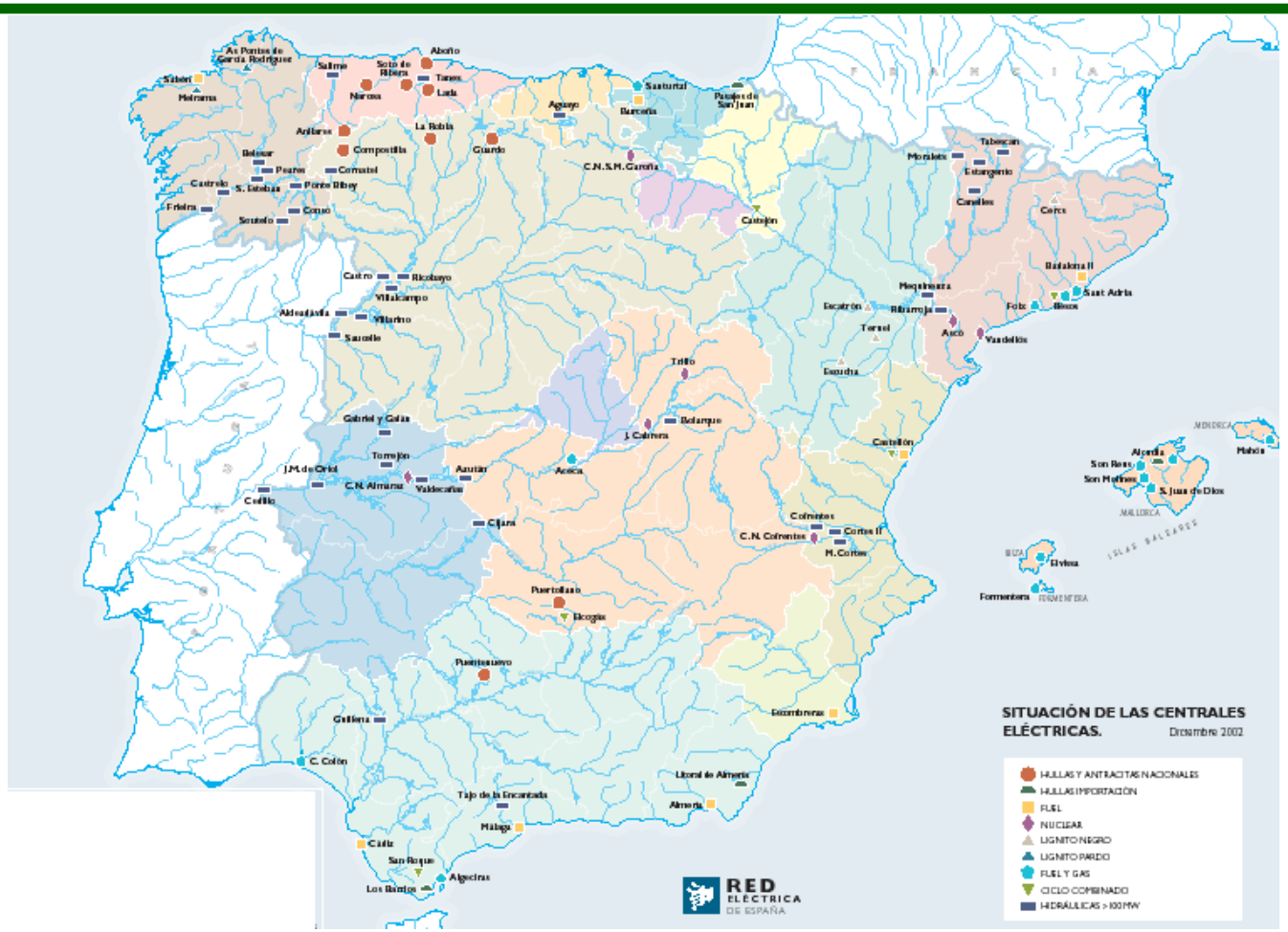
1. Characteristics of the Spanish isolated systems



1. Characteristics of the Spanish isolated systems

- Yearly increase of demand greater than in the Iberian Peninsula, unless 2010

Investment cycles very short

- Capacity of power plants lower than Iberian Peninsula (safety reasons)

Less scale economies

- Less availability of primary energy sources

Generation based on petrol products

Evolution of power generation (GWh), 2010

Year	Iberian Peninsula	Anual variation	Insular and off-peninsular territories	Anual variation
1998	173.155	6,60%	9.254	7,60%
1999	184.459	6,5%	10.077	8,9%
2000	195.166	5,8%	10.794	7,1%
2001	205.849	5,5%	11.581	7,3%
2002	211.563	2,8%	11.969	3,4%
2003	225.843	6,7%	13.121	9,6%
2004	236.280	4,6%	13.818	5,3%
2005	247.295	4,7%	14.505	5,0%
2006	254.902	3,1%	15.018	3,5%
2007	262.406	2,9%	15.596	3,9%
2008	265.173	1,1%	15.843	1,6%
2009	252.608	-4,7%	15.516	-2,1%
2010	259.880	2,9%	15.161	-2,3%

Source: CNE, Informe Marco 2011

1.- Characteristics of the Spanish isolated systems

- Limited interconnections: Peninsula – Mallorca, Mallorca – Menorca, Ibiza – Formentera, Lanzarote - Fuerteventura

  More reserve capacity is needed

- More environmental requirements (less surface + tourism)

  Environmental impact assessment is critical

- Main equipments made on the peninsula

  Transportation of materials, fuel and expert people implying additional costs

- Monopoly in ordinary regime generation and small electricity systems

  No wholesale market

1.- Characteristics of the Spanish isolated systems

RESULTS in comparison with Iberian Peninsula:

Generation: CAPEX and OPEX higher

More difficulties to guarantee security of supply

2. Installed Capacity, Production &Demand 2011

Potencia instalada a 31 de diciembre

	Islas Baleares		Islas Canarias		Ceuta		Melilla	
	MW	% 11/10	MW	% 11/10	MW	% 11/10	MW	% 11/10
Hidráulica	-	-	1	0,0	-	-	-	-
Carbón	510	0,0	-	-	-	-	-	-
Fuel / gas	802	-2,0	1.900	2,1	99	0,0	85	0,0
Motores de combustión interna(1)	199	-7,7	546	0,0	83	0,0	70	0,0
Turbina de gas	603	0,0	641	6,3	16	0,0	15	0,0
Turbina de vapor	-	-	713	0,0	-	-	-	-
Ciclo combinado	934	0,0	920	-1,0	-	-	-	-
Generación auxiliar(2)	0	-	0	-	-	-	-	-
Régimen ordinario	**2.246**	**-0,7**	**2.821**	**1,0**	**99**	**0,0**	**85**	**0,0**
Hidráulica	-	-	0,5	0,0	-	-	-	-
Eólica	4	-0,4	144	0,0	-	-	-	-
Solar fotovoltaica	65	16,8	130	4,0	-	-	0,1	0,0
Térmica renovable	77	2,8	1	-96,8	-	-	2	0,0
Térmica no renovable	11	49,9	33	0,0	-	-	-	-
Régimen especial	**157**	**10,7**	**310**	**-9,7**	**-**	**-**	**2**	**0,0**
Total	**2.403**	**-0,1**	**3.130**	**-0,1**	**99**	**0,0**	**87**	**0,0**

Balance eléctrico anual

	Islas Baleares		Islas Canarias		Ceuta		Melilla	
	GWh	% 11/10	GWh	% 11/10	GWh	% 11/10	GWh	% 11/10
Hidráulica	-	-	0	-	-	-	-	-
Carbón	3.002	-11,2	-	-	-	-	-	-
Fuel / gas	1.315	-3,6	5.722	-3,0	223	-6,3	222	1,4
Motores de combustión interna(1)	958	-9,6	2.303	-0,1	223	-5,2	221	1,4
Turbina de gas	358	17,3	542	53,3	0,3	-89,7	1	-3,4
Turbina de vapor	-	-	2.876	-11,3	-	-	-	-
Ciclo combinado	1.400	17,0	3.055	9,3	0	-	0	
Generación auxiliar(2)	9	30,6	0	-	-	-	-	-
Régimen ordinario	**5.726**	**-3,7**	**8.777**	**0,9**	**223**	**-6,3**	**222**	**1,4**
Consumos en generación	-358	-5,0	-466	-4,4	-19	-10,3	-14	3,6
Régimen especial	**410**	**52,3**	**674**	**-1,7**	**-**	**-**	**7**	**-16,2**
Hidráulica	-	-	1	-	-	-	-	-
Eólica	5	-10,6	394	19,3	-	-	-	-
Solar fotovoltaica	97	9,1	246	26,0	-	-	0	-
Térmica renovable	288	74,0	9	-94,3	-	-	7	-15,7
Térmica no renovable	19	125,4	25	-	-	-	-	-
Demanda (b.c.)	**5.777**	**-1,1**	**8.986**	**1,0**	**205**	**-5,9**	**214**	**0,5**

Evolución de la demanda

	Islas Baleares		Islas Canarias		Ceuta		Melilla	
	GWh	Δ Anual (%)	GWh	Δ Anual (%)	GWh	Δ Anual (%)	GWh	Δ Anual (%)
2007	5.977	2,6	9.214	4,5	203	0,5	193	13,5
2008	6.122	2,4	9.357	1,6	210	3,5	205	6,2
2009	5.991	-2,1	9.103	-2,7	212	0,9	206	0,7
2010	5.840	-2,5	8.894	-2,3	218	2,8	213	3,4
2011	**5.777**	**-1,1**	**8.986**	**1,0**	**205**	**-5,9**	**214**	**0,5**

3. Principles of island and off-peninsular regulation

▶***Electricity prices and access tariff***

- The same throughout national territory (islands and mainland)
- Must be paid by all Spanish consumers
- It does not cover the energy generation costs on the islands and off-peninsular territories
- Access tariff is paid by producers and consumers

▶***No wholesale, but retail market***

3. Principles of island and off-peninsular regulation
Regulation of I. Generation

- ***Free installation***
- ***Standard costs (SC) with 2 components:***
  1. **Fixed costs (investment + fixed O&M costs)**
  2. **Hourly variable costs (fuel cost + var. O&M costs + run and stop costs + reserve costs)**
- ***I. Generation costs are covered by:***
  1. **Market price in the Iberian Peninsula**
  2. **Extra payment based on access tariffs and National Budget (due to increasing tariff deficit)**

3. Principles of island and off-peninsular regulation
Settlement

- ***System Operator:***

Market Price settlement = E * MP

- ***CNE:***

Extra settlement = E * (SC – MP)

  - *provisional*
  - *final*

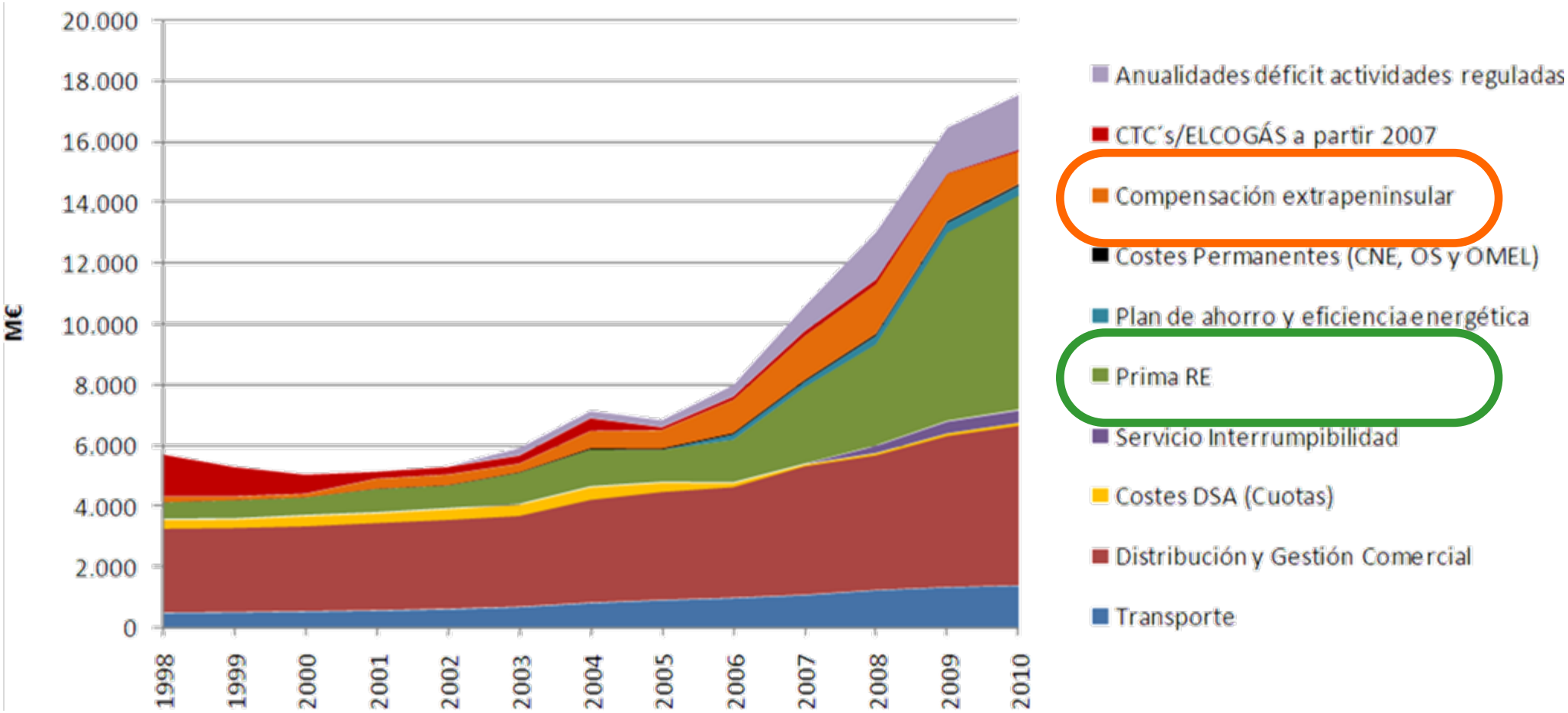
3. Principles of island and off-peninsular regulation

Settlement

Evolución extracoste SEIE	2006	2007	2008	2009	2010
Compensación	**[millones Eur]**				
Referencia a notas:	(3, 7)	(3, 6)	(3, 5)	(3, 4)	(1, 2)
Total general (IB+IC+CM)	**1.082**	**1.338**	**1.625**	**1.324**	**1.641**
IB - Baleares	284	405	487	424	503
IC - Canarias	743	874	1.048	824	1.043
CM - Ceuta & Melilla	55	58	91	77	94
Coste unitario	**[Eur / MWh]**				
Costes unitarios reconocidos a la generación en régimen ordinario					
Total general (media ponderada)	**139,59**	**137,99**	**176,75**	**138,07**	**166,13**
IB - Baleares	115,20	116,52	153,11	119,99	141,45
Compensación unitaria	49,75	69,12	81,66	73,04	89,91
Coste unitario PMP (peninsular)	65,45	47,40	71,45	46,96	51,54
IC - Canarias	153,52	149,29	188,35	145,87	177,54
Compensación unitaria	89,56	102,04	119,57	98,95	126,65
Coste unitario PMP (peninsular)	63,97	47,25	68,79	46,92	50,90
CM - Ceuta & Melilla	204,27	213,42	273,99	235,41	270,13
Compensación unitaria	151,34	150,33	224,43	187,43	222,51
Coste unitario PMP (peninsular)	52,94	63,08	49,56	47,98	47,62
Producción	**[GWh / año]**				
Total general (IB+IC+CM)	**14.369**	**14.822**	**15.129**	**14.534**	**14.256**
IB - Baleares	5.705	5.866	5.964	5.799	5.593
IC - Canarias	8.300	8.569	8.761	8.324	8.239
CM - Ceuta & Melilla	364	386	404	410	423

3. Principles of island and off-peninsular regulation

(National) System's costs evolution 1998-2010, [millions Eur]



3. Principles of island and off-peninsular regulation
Regulation of II.Transmission & Distribution; III. Retailing

II. Transmission and Distribution

- System Operator guarantees continuity and security of electricity supply and proper coordination between generation and transmission including power dispatch based on hourly variable costs.
- Activities are paid due to general rules
- Third-party access to the networks

III. Retail market

- Small consumers (<): Last resource tariffs or free retailer
- Rest of consumers (>) : free retailer
- Payment of consumers:
  - Hourly energy + losses ⟶ spot-market price in Iberian Peninsula
  - Access tariff: general access tariff nationwide

4. Short term proposals

- There is a **potential for reducing the system's operational costs**. But some regulatory shortcomings as lack of:
  - -economical audits rules, with neutral criteria
  - -installation testing rules
- New **operational procedure for mix of fuel**
  - -to recognize the cost of all fuels
- Development of **Royal Decree 6/2009**: Extra settlement was included in the General Budget: 17% (2009); ~~34% (2010); 51% (2011)~~; ¿75% (2012)?; 100% from 2013 onwards
- **New renewable capacity** will be installed to use the natural resources of isolated power systems. But , to develop RDL 1/2012 and to increase the storage capacity, are needed
- **Energy efficiency in demand**: smart meters roll-out & hourly price modulation linked to each (SEIE) system demand

Thank you for your attention!

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