

**Desalination in the Canary Islands, an updated view**

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The data presented herein are for the year 2000 and are based on official figures, as well as a survey carried out by the Canary Islands Water Center. However, some estimates had to be made to complete some of the tables.

**1. Facts and figures about the Canary Islands**

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1.600.000 inhabitants  
7 islands  
1.531 km of coastal line  
355.000 hotel beds  
2.700 hotel installations  
10.500.000 visitors per year (average stay 10 days)  
First desalination plants started operating in 1965

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**2. Desalinated water use**

	m <sup>3</sup> /d	# plants
Urban	210.000	153
Irrigation	105.000	100
Total	315.000	253

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**3. Water sources**

	m <sup>3</sup> /d	# plants
Ocean	177.000	140
Brackish (sodium chloride)	110.000	100
Brackish volcanic (sodium bicarbonate)	13.000	10
Treated municipal wastewater	15.000	3

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**4. Population supplied with desalinated water**

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Year 2000	1.000.000
Year 2005 (estimated)	1.400.000

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### 5. Islands varied dependence on desalination

From East to West	consumption hm <sup>3</sup> /y	desalination hm <sup>3</sup> /y	%
Lanzarote	17,5	14,7	84 %
Fuerteventura	14	11,3	80 %
Gran Canaria	150	61,5	41 %
Tenerife	200	28,0	14 %
La Gomera	10	0	0 %
El Hierro	2,7	0,5	19 %
La Palma	62	0	0 %
<b>Total</b>	<b>456,3</b>	<b>116,0</b>	<b>25 %</b>

### 6. Type of plants presently in service

Technology	# plants	m <sup>3</sup> /d
Vapor compression (VC)	10	5.000
Multi-stage-flash (MSF)	2	10.000
Multi-effect-distillation (MED)	2	40.000
Electrodialysis reversible (EDR)	23	40.000
Reverse osmosis (RO)	216	220.000

### 7. Number of plants according to size

Size	m <sup>3</sup> /d	# plants
Small	≤1.000	120
Medium	1.000-5.000	111
Large	> 5.000-30.000	21
Very Large	≥30.000	1

### 8. Ownership

	# plants	Estimated Investment (US\$)	m <sup>3</sup> /d
Private	227	55.000.000	100.000
Public	25	100.000.000	215.000

### 9. Energy source for desalinated water

	%
Fuel oil	87%
Surplus steam	13%
Wind	0,02%
Natural gas	0 %
Photovoltaic	0 %

**10. Evolution of energy consumption per cubic meter desalinated seawater**  
(best available technology)

Year	Kwh/m <sup>3</sup>
1975	22
1980	17
1985	14
1990	9
1995	5
2000	2,9

**11. Energy savings techniques**

- Reverse osmosis with energy recovery devices
- Two steps RO with two different types of membranes and intermediate booster
- Electrodialysis reversible
- Advanced multi-effect-distillation plants

**12. Reliability of the systems**

- Most suppliers guaranty >90% availability
- Life expectancy of the plants 20-25 years
- Replacement is more a need to improve energy efficiency than rundown problems

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