Measure & manage Energy consumption in a Tourist Destination?

Let’s ask Chat GPT...

1. **Establish energy consumption baseline:** Gather data on electricity, fuel, and water usage to understand current energy consumption patterns in the destination.

2. **Set energy consumption goals:** Determine realistic and achievable energy consumption reduction goals aligned with sustainability objectives.

3. **Conduct energy audits:** Perform comprehensive audits of key facilities to identify areas of high energy consumption and potential improvements.

4. **Promote energy-efficient practices:** Raise awareness, provide training, and encourage the use of energy-saving technologies.

5. **Monitor energy consumption:** Implement an energy monitoring system to track usage regularly and identify trends for improvement.

6. **Collaborate and communicate:** Engage stakeholders, implement energy management strategies, and communicate results to foster collective action and continual improvement.
...a Tourist Destination
Challenges for a tourist destination

• All things equal “More people need & use more resources”.
• A highly dense population has a concentrated impact on the economy, society and environment of that destination.
• Whenever social inequality in that tourist destination feels higher than “average”, discontent in the form of Decrecimiento (Anti-Growth/Decrease), Turismofobia (Hatred of tourists) and Overtourism arises.
• Therefore it is key that we ensure that the whole of the destination society has at least access to:
  ✓ Good quality affordable drinking water
  ✓ Affordable energy
  ✓ Decent housing
  ✓ Decent jobs with decent salaries
• Besides it is desirable that the destination society can enjoy:
  ✓ Clean air, free of particulate matter and pollutants
  ✓ Natural reserves where to interact with a pristine landscape
  ✓ Energy independence/Autarky
  ✓ Reduced GHG-Emissions that limit global warming and its consequences
Solutions to those challenges...

• Measure, monitor and communicate all relevant variables / STO Mallorca


• Up-to-date Legal Framework: less is more. Less rules and prohibitions. More inspections and fines.

• Purpose-driven technology of all sorts and sizes (From Windturbines, Electrolysers and AVs to IoT and Blockchain)

• Preserve limited resources with innovation:
  ✓ Facilitate and promote private initiatives in tourism that seek circular, cradle-to-cradle solutions for their businesses.
  ✓ Facilitate and promote private initiatives in tourism that seek energy and water independence / autarky.
  ✓ Facilitate and promote private initiatives in tourism that reduce their dependence on public infrastructures paid with public money, such as the electric grid, water pipes, roads, etc.

• Help the private touristic sector to minimise the exploitation of the destination’s public resources while at the same time help it to assure its long-term sustainable contribution to the local society and its economy
...Hotel ROBINSON Cala Serena
Our latest experience so far...

400 Room Hotel-Resort, first built in 1974, rebuilt in 2002, all-year-round open and located on a 100,000m² plot on Mallorca’s east coast.

2011 Challenges: Terrible water quality / Noise Neighbourhood / High Inefficiencies and leakages / Too much oil consumption / Costs

Our approach: **Energy Efficiency Masterplan 2011**

- BMS: all digital, all supervised, all automatic
- Biomass boilers: 2 x 200 kW → 300,000 ltr/a avoided
- Geothermal Heat pumps: 3 x 50 kWe (COP 4) → High efficiency HVAC Solution for all year
- Aerothermal Heat pumps: 2 x 80 kWe (COP 3,2) → HVAC Backup or peak demand
- Solar panels: 500 m² / 3 x 3 m³ heat buffers → 80% Warm water production in summer
- General Pipelines renewed: Warmwater, HVAC, Fire, Irrigation, Electrical, etc.
- Waste water from public sewage plant is treated and reused for irrigation
- Reverse Osmosis: 10,000 ltr/h → 220-230 m³/day
  - Aquifer protection: 70 million litre water per year stay now in the aquifer, thereby reducing sea water intrusion.
  - The whole system consumes 2,2 kWh/m³ or an equivalent of 12,2 hairdryers of 1.800 W each per hour.
Our Circular-Water-Autarky Concept

**AGUA DE MAR**
- **SONDEO**
  - Captación
  - **DESALACION**
  - **ELECTROLISIS SALINA**
  - Agua Rechazo/SALMUERA
  - "Blending"

**AGUA PURA**
- Mineralización
- Evaporación y pérdidas
- **Recuperación**
- **Rechazo Definitivo**
- **Depuración**
- **Rechazo**

**AGUA GRIS**
- Concienciación
- **Desagüe**
- **Depuración**
- **Rechazo Definitivo**
- **Biogas**

**AGUA NEGRA**
- **CONSUMO HUMANO**
- **AGUA POTABLE**
- **AGUA DE LLUVIA**

**PISCINAS**
- **LIMPIEZA**
- **INSTALACIONES**
- **ARROZ**

**AGUA RECLAMADA**
- **SONDEO**
  - **Recarga**

**AGUA ACUÍFERO**
- **ROBINSON Cala Serena | Energy and Water Autarky | Miguel Galmés Schwarz**
Our NetZero by 2030 approach

1. Measure
2. Find energy savings
3. Find energy efficiencies
4. Electrify everything – Zero fumes
5. Contract Green Electricity Supply
6. Produce renewable energy
7. Consider energy storage to reach autarky
8. Carbon Accounting