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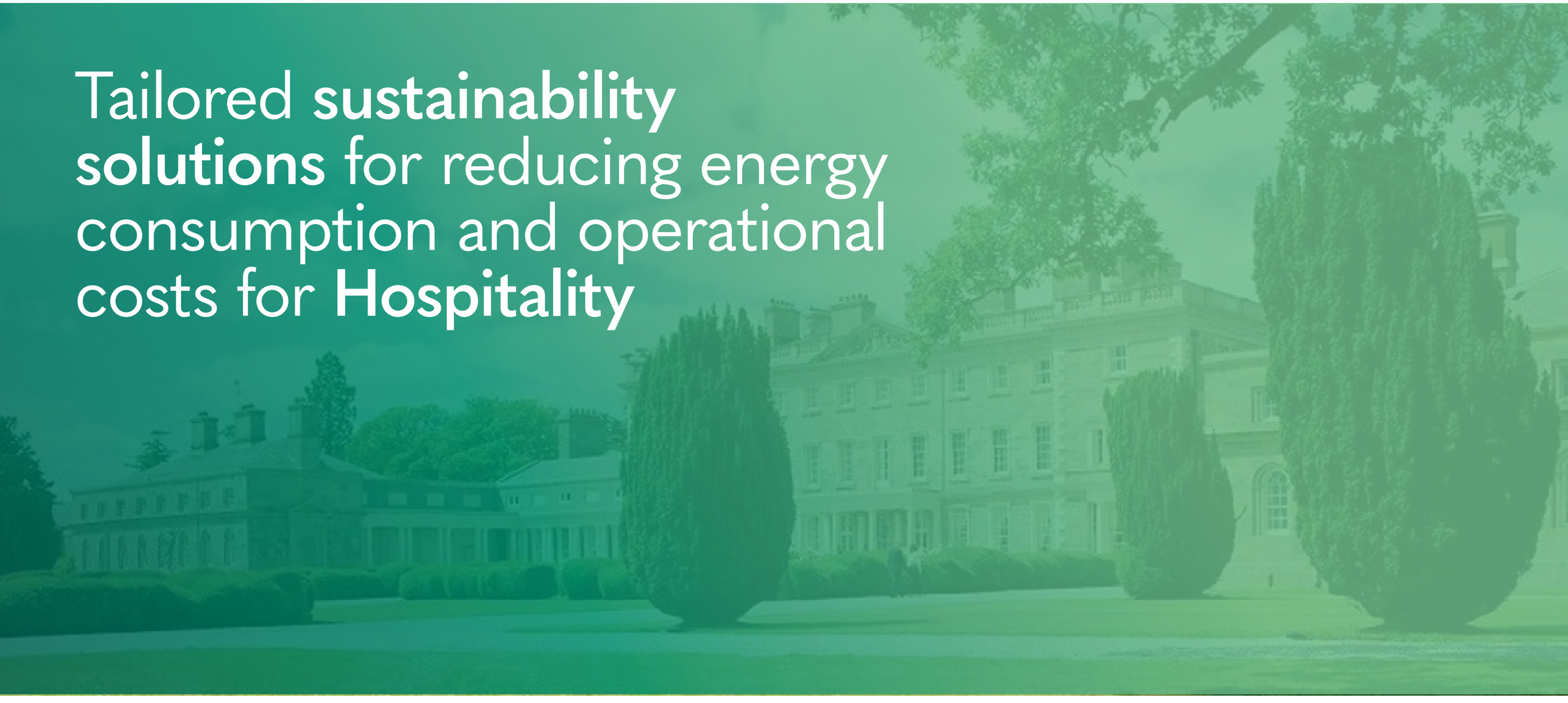
SUSTAINABILITY ADVISORS

Tailored **sustainability solutions** for reducing energy consumption and operational costs for **Hospitality**



Sustainability through a commercial lens.

WHO
WE ARE

Optimal Sustainability Advisors (OSA) was founded in response to the growing environmental and socioeconomic challenges facing Ireland's real estate and construction sectors. We want to promote responsible and forward-thinking practices across the Hospitality industry. With our extensive background in the delivery of hotel projects, we aim to support our clients in their transition to a low-carbon economy while helping them achieve strong commercial outcomes and long-term resilience.

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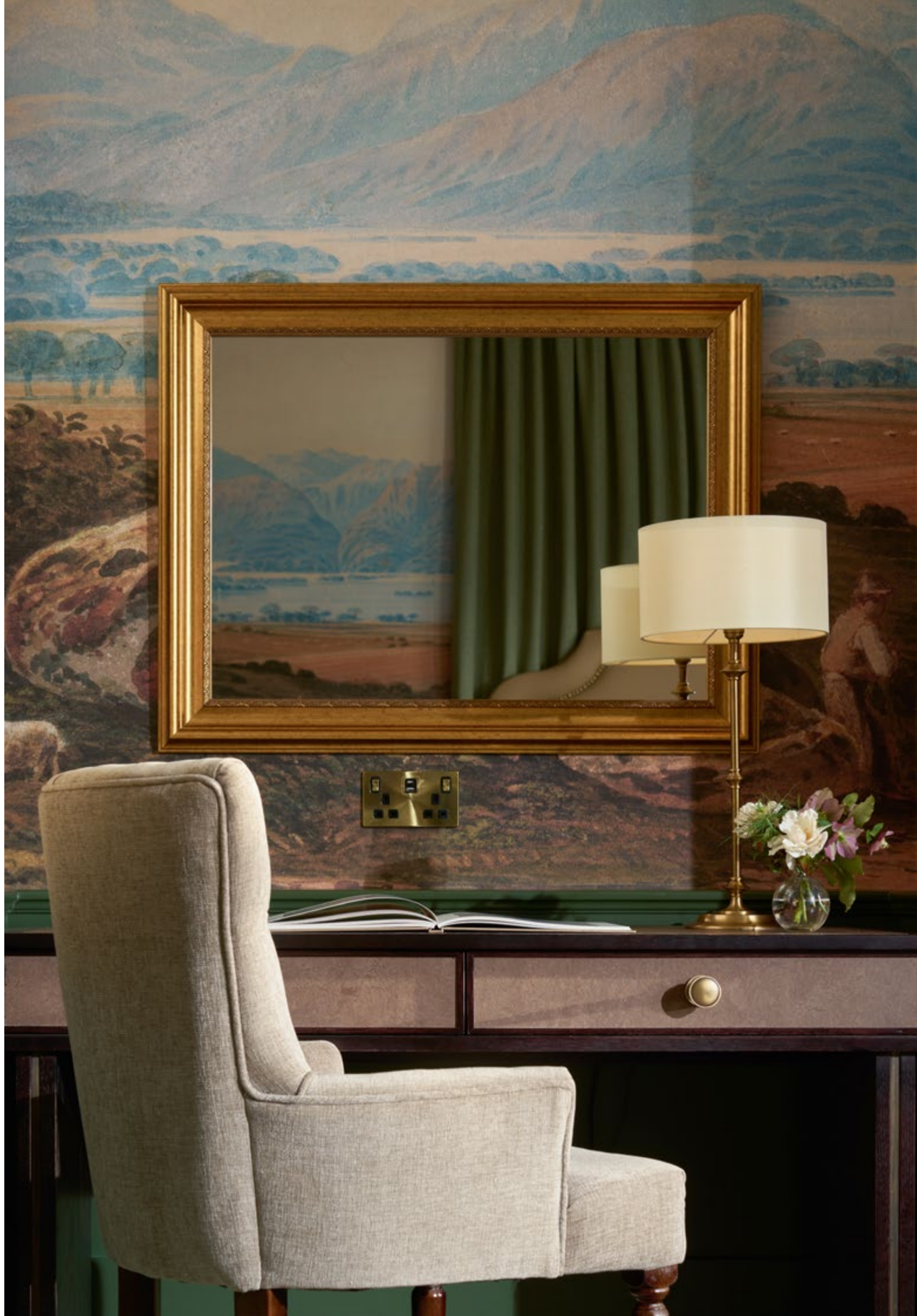

HOW OSA CAN HELP

We are a client-focused company, placing strong emphasis on close personal involvement in the delivery of all our hotel projects. We maintain an energetic and versatile approach, adapting our methods to the needs of our clients. Our goal is to make our clients' hotels and operations as resource efficient as possible to reduce their environmental footprint while at the same time growing their business and maintaining sustainable asset value.

Certifications, Accreditations & Memberships

WHY YOU NEED TO DO IT
THE REGULATORY ENVIRONMENT

Ireland's hospitality industry must align with both national and EU-level sustainability mandates. These include:

1. Building Regulations
Irish building codes now require compliance with energy efficiency standards, especially for new builds and major renovations.

2. Planning Permissions
Local authorities are integrating sustainability criteria into planning approvals, affecting hotel developments and refurbishments.

3. NZEB (Nearly Zero Energy Buildings)
NZEB standards are mandatory for all new buildings in Ireland since 2021. For hospitality, this means:

- Hotels and guesthouses must be designed or retrofitted to consume very low energy, with most of it coming from renewable sources.
- Operational savings: While upfront costs may be higher, NZEB buildings reduce long-term energy bills and carbon footprints.

4. Zero Carbon Goals
Ireland is committed to achieving net-zero carbon emissions by 2050. For hospitality, this translates into:

- Carbon accounting: Hotels must track and reduce emissions from energy use, food sourcing, waste, and transport.
- Green certifications: Many are pursuing certifications like LEED, BREEAM, or Green Hospitality to demonstrate compliance and attract eco-conscious guests.

5. EU Taxonomy
The EU Taxonomy is a classification system that defines what constitutes an environmentally sustainable economic activity. What this means for Irish hospitality:

- Investment and financing: Access to green finance increasingly depends on alignment with EU Taxonomy.
- Construction and renovation: Projects must demonstrate compliance with criteria, for example a 10% reduction in Primary Energy Demand (PED), waste management targets, and biodiversity considerations
- Life Cycle Global Warming Potential (GWP): New EU directives require buildings to disclose and reduce emissions across their entire life cycle. This being scope 1,2 & 3 emissions.

WHY IT MATTERS FOR IRISH HOSPITALITY

- **Market competitiveness:** Tourists and corporate clients are prioritising sustainable accommodations.
- **Operational efficiency:** Energy-efficient buildings reduce costs and improve resilience.
- **Access to funding:** Green loans and EU grants increasingly require alignment with NZEB and EU Taxonomy standards.

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WHAT WE DO
HOW ARE WE DIFFERENT

We view our services as a value-add approach, that protects the value of the asset and enhances the operator's commitment to the environment and the wellbeing of their Guests.

- Energy audits, using the SI 426 Energy Auditing Scheme (EAS) as mandated by the SEAI.
  - Objective: establishing the hotels energy baseline for electricity and gas, (scope 1& 2 emissions) which is the foundation for a hotel an energy reduction & optimisation strategy.
  - Advising on the suitability of on-site renewables, such as PV and associated power purchase agreements (PPA)
  - Collaboration with the hotel stakeholders on aligning their energy reduction strategy with Irelands sectoral 2030 and 2050 GHG reduction targets.
  - Incorporating climate mitigation & adaptation principles into the Hotel operator's climate action road map.
  - BER assessments
- A combined project & sustainability management service for the refurbishment, new build of existing and new hotels. In addition, we can manage the execution and procurement of energy efficiency upgrades and advising on available grant assistance.
- Future proofing: ensuring the project design incorporates a level of flexibility to meet the forthcoming changes to the Energy Performance Building Directive (EPBD) as it transitions from NZEB to Zero Emission Buildings (ZEB)
- Developing Sustainability KPI's for the in-house facility managers.

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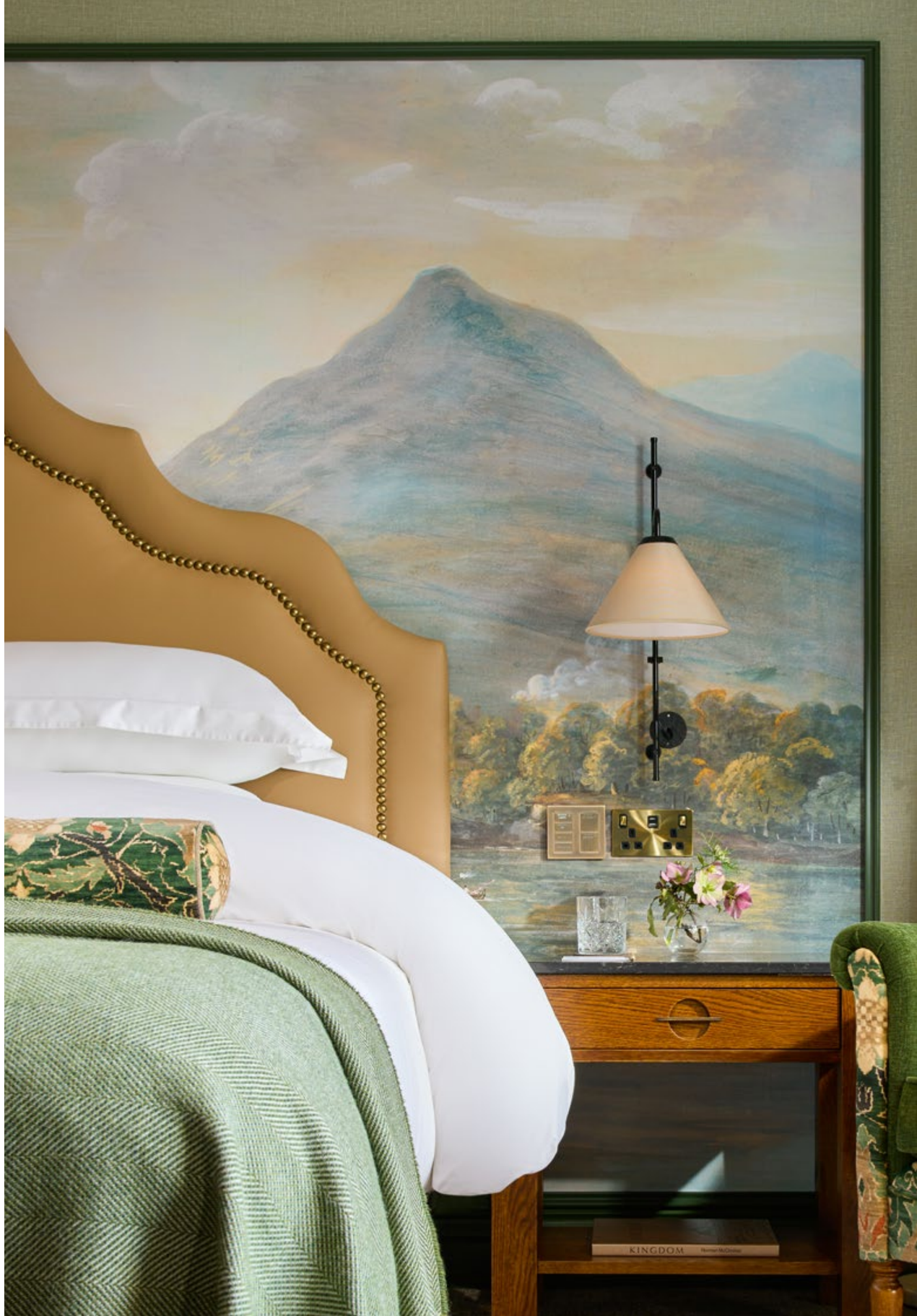


HOW WE DO IT

UNMEASURED RISK IS UNMANAGED RISK

We view our services as a value-add approach, that protects the value of the asset and enhances the operator's commitment to the environment and the wellbeing of their Guests.

Determining the initial status of the asset, with an energy audit.

- You can only systematically improve things if you measure them.

Asset improvement plan:

- Using the energy/ asset audit, OSA will create an asset risk register to ascertain what existing plant and equipment can be optimised and what equipment will need to be replaced in line with the operators CAPEX budget.
- The objective is **not** to replace plant & equipment if it can be optimised to be more energy efficient, the object with an energy audit is to reduce the hotels overall energy intensity, thus reducing the associated GHG emissions.
- OSA will only advise on new plant and equipment if it is necessary and make a strong return in investment business case. *The EU acknowledges that natural gas can play a role in the short- to medium-term as a bridge in the transition from high-emission fossil fuels (like coal and oil) to a fully renewable energy system.

**Permitted use of Gas with Conditions; Hotels can continue to use gas for heating, hot water, and cooking if systems are energy-efficient (e.g., condensing boilers) New installations may need to meet specific emissions thresholds or be designed to switch to renewable gases in the future.*

Optimisation Delivery

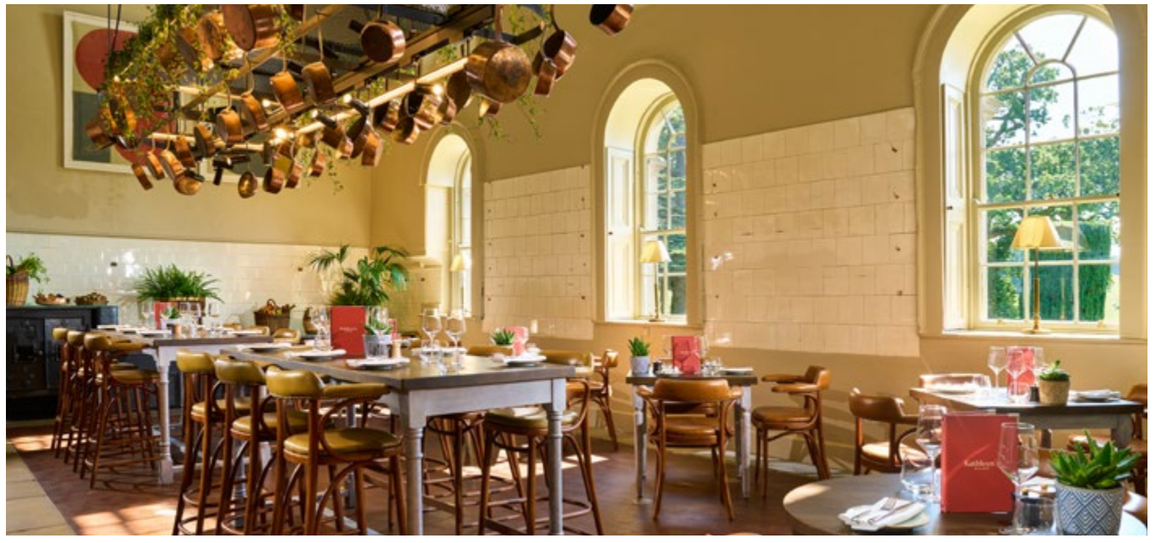
- The agreed energy reduction plan will be competitively tendered to include associated builders works. Once costs have been agreed with the operator, the timing of the project and working in a live hotel environment will be carefully programmed to minimise disruption to the hotel and guest experience.

Quality Assurance & Data disclosure

- Review the new energy efficient upgrade works, to ensure they meet the designed performance specifications and are effective and enable reliable energy KPI reporting.

Climate action roadmap impact

- 2030 & 2050 carbon risk investment strategy developed.



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CARTON HOUSE
A FAIRMONT MANAGED HOTEL

CASE STUDY

Achievements: seai EEOS

Value: €25M

Role: Project and Asset Manager

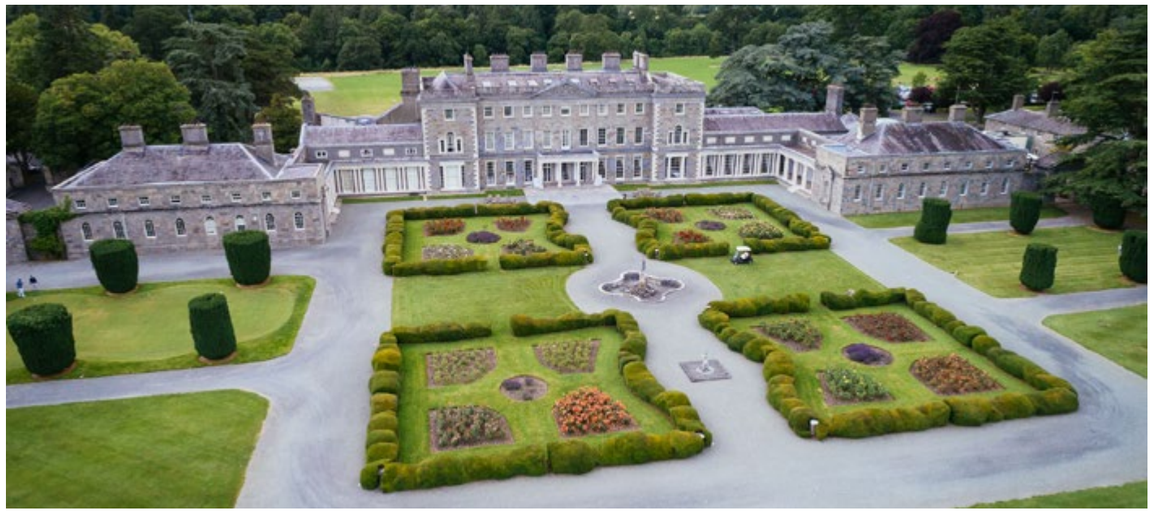
OSA have been involved in Carton House since 2018, Brian was the Project director for the re-development works from 2018 to 2020. Brian through OSA has continued as a sustainability advisor and asset manager.

The energy savings agreement presented to Carton House guaranteed a minimum saving of 15% (EST €60k conservative) and a target saving of 25%. What has been achieved is a saving of 18.9% which equates to a cash back sum of €94,805,00, in addition to the estimated annual hotel energy cost saving of €80k equates to a total amount €174,805,00. The annual €80k energy cost saving will continue and will increase with the installation of the new domestic hot water clarifiers and pool heat exchanger and any other energy saving upgrades to the hotel.

OSA have just completed an ambitious optimisation upgrade to the 3no existing 1.5MW gas powered boilers, by retrofitting smart controls to each boiler, a modulating burner to the lead boiler and adopting a duty and standby strategy. In addition, Leaks were identified to the main flow and return LPHW pipe work which was repaired and all pipework re-insulated. A key part of the return on investment strategy was negotiating energy credits with the hotels energy supplier, in addition to a 12-month international performance measurement & verification process (IMPVP).

Below is a summary of the IPMIVP process and energy credits:

- Optimal Sustainability Advisors in Q3 of 2023 brought to the attention of Carton House the benefits of undertaking the IPMVP as a mechanism to enhance the return on investment of capital expenditure for energy efficiency upgrades to the property in addition to the potential savings on the hotel's annual energy costs. When the concept of IMPVP was presented to ownership the estimated monetary return in energy credits was in the region of €120k net of the annual hotel gas usage costs.
- This estimation was based on the above-mentioned upgrade works.
- In addition to the monetary element of the IPMVP Carton house reduced their overall site emissions (scope1) by 218,052 kg of CO_2 which is broadly in line with Fairmont Hotels in Europe, as part of the Accor Group, follows Accor's science-based climate targets. These include a 46% reduction in Scope 1 and 2 CO_2 emissions by 2030, using 2019 as the baseline year. These targets are validated by the Science Based Targets initiative (SBTi) and apply across all managed properties, including Fairmont-branded hotels.



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KILLARNEY
PARK HOTEL

CASE STUDY

Achievements: BER B1

Value: €12M

Role: Project Management, Sustainability Advisors

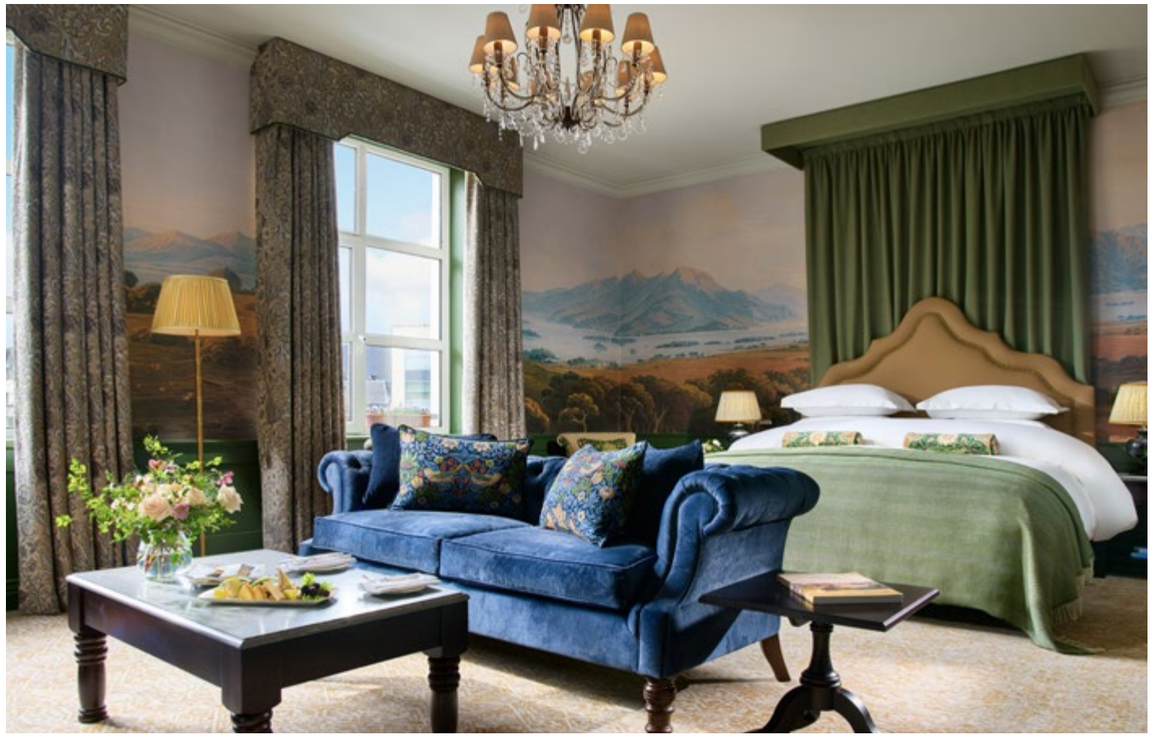
The renovation of the Killarney Park Hotel involved a full strip-out and complete redesign of all bedrooms, en-suites, and circulation corridors from the 1st to 4th floors, alongside significant upgrades to external landscaping and the arrival area.

Mechanical and electrical systems were modernised, including sub-metering, and fire and life safety works were carried out to meet Part B of the Building Regulations.

Sustainability was a key focus, with Environmental Product Declarations (EPDs) requested for all materials, prioritising local procurement to reduce scope 3 emissions. Additionally, all materials in contact with guests were required to have certified low VOC content, in line with EU Taxonomy 7 (construction & real estate activities)

Key sustainability deliverables:

- Sustainable Tourism Network: Gold Certified.
- Circular economy principles, all existing FF&E was re-used at hotels in Dingle and Clare.
- PV array: A 65.6 kWp custom designed Solar PV system, using 125 x 525 W roof mounted tier 1 solar panels. (5-year funded solution – investment cost spread over 5 years (60 months) payments made in monthly instalments, includes SEAI grant)
- Sub-meters have been installed to the Main incoming electricity supply and the sub distribution boards throughout the hotel, in addition to water meters, which will be monitored in real time and reviewed against the hotel's energy & water efficiency KPI's.
- Guest Room Management System: Guest experiences intelligence (GXI)an advanced cloud-based GRMS enabling real-time monitoring & optimisation of the guest experience through objective measurable data. Sensors are installed in the room that capture key parameters that influence the guest well-being/ sleep quality and adjust the room settings accordingly. In addition, the GRMS has key energy saving measures that monitor room occupancy.
- Sedum nature roofs were installed on all flat roofs, which are visually appealing and eco-friendly, enhances the KPH biodiversity strategy and blends seamlessly with the natural landscape of Killarney National Park.



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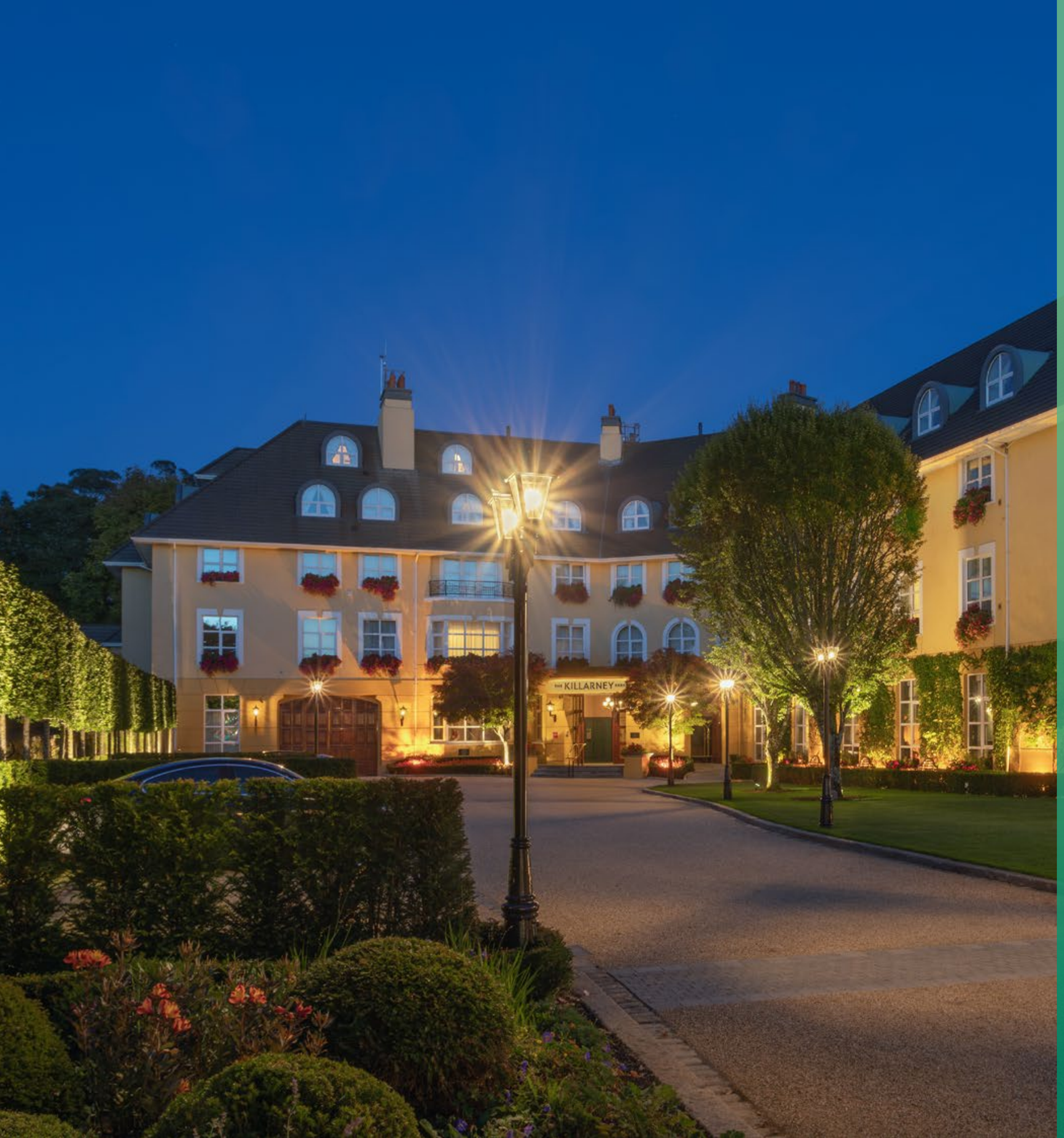


"OSA completed and delivered an exceptionally challenging renovation project for The Killarney Park. The hotel worked with OSA for over 12 months but the onsite delivery took place over a very tight 5 month program. Despite the geographical differences between Dublin and Kerry the onsite coverage was flawless. The OSA team assisted greatly in managing the design team of a very high-level renovation of all 70 bedroom and grounds of our hotel and we were thrilled to work with their highly competent team."

MARCUS TREACY

Managing Director
The Killarney Park & The Ross

DUNLOE HOTEL & GARDENS, KERRY

CASE STUDY

Achievements: Reducing building's energy intensity & carbon footprint
Proposed refurbishment value: €25M
Role: Energy Auditors, Sustainability Advisors

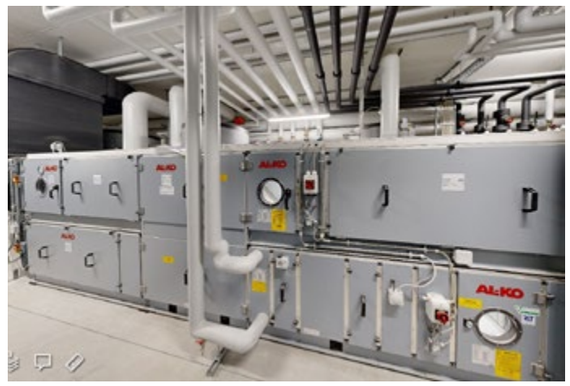
Optimal Sustainability Advisors were appointed by the Dunloe Hotel, part of the Liebherr Group hotels portfolio, to undertake a detailed energy audit of the property, as part of the sustainability strategy for the new project works.

The purpose of this audit is to establish a baseline energy intensity kwh per m2 GIA for the hotel and identify energy saving opportunities.

The Liebherr Group's latest Corporate Sustainability Report (CSR) report, states that reducing energy consumption improves profitability.

Summary of High-level Recommendations for design consideration;

- Bedrooms, upgrade to VRF system from existing radiators with Thermostats
- Pipework insulation and Valve covers (A case study in Ireland revealed that each uncovered valve had a heat loss of more than the 1 meter of exposed pipe of the same diameter, (Payback on insulated valve covers is typically less than one year)
- Leisure Centre - AHUs plus pool heating; The Pool is currently heated with a heat exchanger and pool air is supplied via an old AHU with no heat recovery. Upgrade to an energy efficiency integrated unit using a "HeatStar" unit, as they control humidity, fresh air flow, recirculation and pool heating.
- Sub-metering: A submeter strategy will be developed to monitor and gas & electricity usage by area. This will facilitate proactive energy management against energy reduction KPI's
- On-site renewable/ PV array; The Hotel has adequate roof space, to support a large 80kw PV array.
- Geothermal; A detailed study by a specialist Geothermal consultancy of the potential and expected kW extraction rate is a relatively low-cost endeavour and could potentially yield a very important source of low-cost, low-carbon heat.
- Existing Chiller: Conventional chillers are inefficient at partial load; individual compressors tend to run close to 100%.
  - Replacing the chiller with a centrifugal compressor pump and inverter speed drive improves energy efficiency.



A well-maintained example of a back-of-house plant room.

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THE MARKER HOTEL
GRAND CANAL SQUARE, DUBLIN

CASE STUDY

Achievements: BER B1

Role: Energy optimisation upgrade and BER improvement strategy

Brian was the original Project manager for the construction and opening of the Marker Hotel in 2013. After the opening Brian took up a position on the senior board of hotel management and an interim role of director of facilities until 2015. During his time at The Marker, Brian worked closely with the then GM Charlie Sheil, who mentored Brian on hotel operations. This was valuable learning curve for Brian and gave him a unique insight on hotel operations and the associated challenges. The Marker was sold to Deka Immobilien in 2020.

In 2021 Brian on behalf of Deka commissioned a detailed energy audit to understand the Hotels energy intensity. The Carbon Risk Real Estate Monitor (CRREM) tool was used to ascertain the buildings GHG intensity relevant to the EU's 1.5-degree global warming target. The CRREM tool highlighted The Marker would fall on the wrong side of the 1.5-degree pathway by 2026, with a then GHG Intensity of 90 kg CO_2e/m²/yr.

To mitigate the risk of the asset becoming stranded, Deka appointed a project team to design and deliver a number of key energy efficient measures to ensure the Hotel remained on the right side of the 1.5-degree pathway up to 2031, reducing its GHG intensity to 55 kg CO2e/m²/yr.

The following works with a capital cost of €700k and an ROI of 4 years was undertaken:

- Existing Bedroom Fan coil units were replaced with new VSD energy efficient FCU's
- Full BMS upgrade and new submetering
- New 2 no Air to Water Chiller / heat pumps / heat-recovery units.
- The chiller heat recovery units delivered 45degree water to two new water to water heat pumps that had the capacity to heat the 45-degree water to 75 degrees. This water was then used for DMW services and supplementing the LPWH heat demand in the hotel.
- This heat recovery strategy reduced the demand on the existing 1.1MW gas powered boilers to produce heat for the DHW system, thus reducing the gas consumption and contributing the return on investment for energy efficient upgrades.

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BRIAN CUNNINGHAM
DIRECTOR

Brian is a seasoned professional with over 3 decades of experience in the built environment. Brian brings a wealth of knowledge, strategic insight, and a deep commitment to shaping a greener, more resilient hospitality sector. Outside the boardroom, Brian is driven by a passion for endurance sports. His greatest joy comes from time spent with his children and doting on his granddaughters, who keep him young at heart and inspired.

MEMBERSHIPS

- Associate member of the Charted Institute of Builders
- Member of the Institute of Project Management Ireland
- Member of ESG Ireland
- Member of the Irish Green Building Council
- Member of the Urban Land Institute
- Member of the Passive House Association Ireland
- Approved CRREM EU service provider
- Director GCS Hotel Property Ltd.

EDUCATION

Global Real Estate Sustainability Benchmarking (GRESB) Advanced Program Manager
March 2019, Amsterdam

LEED AP
April 2020

Certified Responsible Invest Advisor
Responsible Investment Institute, 2021

PMI strategic Project Management Diploma (Level B)
National College of Ireland, 2015

Degree in Construction Technology with Merit
Technological University Dublin, Bolton Street, 1993

Apprenticeship and trade qualifications Carpentry and Joinery
Vauxhall College, London, September 1985

CONCLUSION

OSA support hotels to become more sustainable and responsible. Hotels that don’t have a clear climate action plan are at risk. With the EU aiming to cut greenhouse gas emissions by 55% by 2030 and reach net zero by 2050, Hotels that fall behind may struggle to meet new rules and expectations. This could damage brand reputation, reduce guest trust, and even lower the value of your property. Acting now helps protect your hotel’s image, meet EU climate targets, and keep your asset strong for the future.

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