EXECUTIVE SUMMARY

The Hotel case is a study of finance. Specifically, a Marriott franchisee is seeking to improve the efficiency of a New Jersey hotel but lacks internal capital to fund energy conservation measures (ECMs). With Marriott Hotels recently releasing a corporate sustainability platform, the hotel owner is developing a proposal to engage Marriott in an energy efficiency project. The property underwent a re-commissioning study in 2010 and recently implemented the identified no-cost ECMs. It is assumed that the ECMs identified in the case are required, as part of the PIP with Marriott, and failure to implement all measures within five years would violate the franchise agreement.

Relationships

Maintaining the franchise relationship is in the best interest of both parties. Based upon the case information, we estimate Marriott is receiving $1.5 - $2 million in royalty fees from the hotel. And, based upon a hotel search on Marriott's website, this is their only franchisee in Morris County, NJ. While Marriott could terminate the agreement and collect a fee (assumed to be liquidated damages for two years), the fee would not be equal to eight more years of royalty fees. The brand would also have costs associated with finding another hotel in the same area. The hotel, on the other hand, benefits from Marriott's brand recognition and support; its profitability could suffer greatly if it loses its relationship with Marriott.

Educate Franchisees

A pillar of Marriott's sustainability statement is "providing education to all franchisees and staff on sustainability practices" (U.S. Department of Energy, 2012). Marriott has introduced a LEED template for new hotel design but has not, to our knowledge, developed a guide to green its over 3,000 existing hotels. As part of our efficiency project we invite Marriott to participate and test ideas for meeting hotel efficiency goals with little or no capital requirement. In pursuit of its sustainability statement, Marriott could use the experience to develop a guide to greening existing hotels.

Proposal

We present three complementary scenarios to Marriott.

Scenario 1: The hotel adjusts heating & cooling setpoints in common areas and implements a linen reuse program. Projected operating savings will allow the hotel to complete all PIP items without Marriott investment. The hotel asks for a two-year extension of the PIP.

Scenario 2: Marriott defers $420,000 in royalties this year. Royalty savings will be invested into PIP measures next year. Resulting operating savings will be used to repay royalties over the course of five years.

Scenario 3: Marriott creates a Revolving Green Loan Fund and provides a loan of $460,000 to the hotel this year. Marriott will charge an annual 3% administration fee and will negotiate a rate of return. An established Fund will provide Franchisees access to capital for improvements that help meet Marriott's sustainability goals. This will help Marriott compete with other brands for new hotels and accelerate its pursuit of a greener brand.

ISSUES

Split-Incentive

The process of greening an existing hotel does not naturally align incentives with all affected parties. Marriott has issued a sustainability platform to build a green brand and attempt to maximize revenue through this brand evolution. Their franchisees, though, must bear the financial risk and burden of accomplishing Marriott's sustainability goals. The franchisees' direct reward is operating savings, and both parties may benefit from increased revenue. But, Marriott is not currently providing special advertising on its reservations page for its green hotels so this revenue may not be maximized (Marriott Hotels).

Access to Capital

Large hotel owners and hospitality REITs may have access to internal capital or have significant equity to borrow against. But smaller hotel owners may have weaker balance sheets, creating an obstacle to efficiency investments. In poorer economic times, even large owners can experience the same roadblock.

Guest Energy Use

Our literature review, energy model and proposal suggest that behavior and HVAC modifications to non-guest room areas can significantly reduce operating costs with little capital investment. The case identifies six such measures already implemented by the hotel owner. None of these ideas addresses energy use by guests. Since maintaining guest happiness and comfort are integral to hotel revenue, it is understandable that brands and owners are reluctant to place any restrictions upon guest energy use. Whether through technologies or direct guest behavior campaigns, hotels will struggle to achieve tremendous utility savings without addressing this issue.

LITERATURE REVIEW

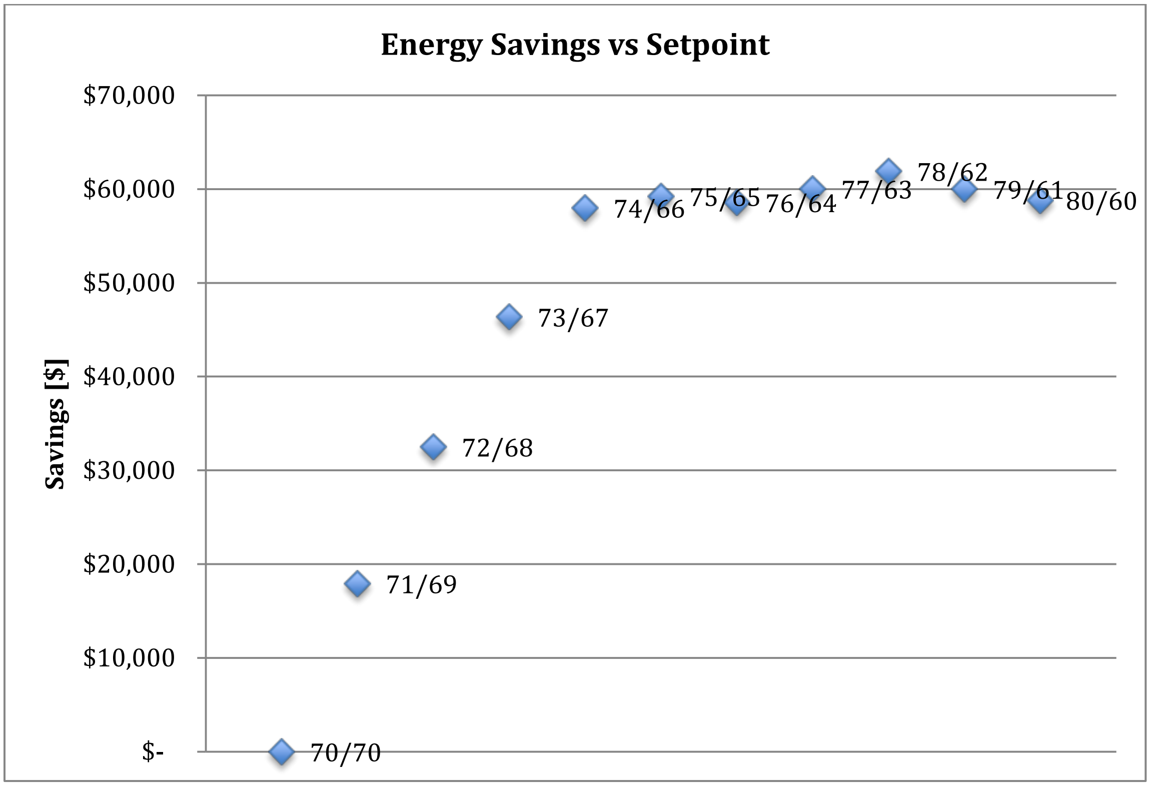
Demand for Green Hotels

Since Marriott receives royalties for revenue, it's important to show the possibility of increasing revenue by greening the case hotel. In 2008 Deloitte surveyed over 1,000 business travelers on the topic of sustainability in the hospitality industry. 95% of respondents said, "lodging companies should be undertaking green initiatives" (Deloitte, 2008). And only 6% of participants identified the industry as very or extremely environmentally friendly (Deloitte, 2008). This perception provides an opportunity as 38% of participants stated they have taken initiative to identify an environmentally friendly hotel, 28% of which did so via Internet research.

No-Cost Efficiency Opportunities

Research of utility initiatives, EPA Energy Star publications, hospitality industry organizations and engineering papers provided information on low/no cost efficiency opportunities. The American Hotel & Lodging Association estimates towel & linen reuse initiatives save $.92 daily per room (American Hotel & Lodging Association). PEPCO, a utility, estimates heating costs could be reduced by 3% for each setpoint degree below 70 (PEPCO, 2012). Similarly, cooling costs can be reduced by 5% for each degree increase in temperature (PEPCO, 2012).

Our energy model, assuming common area cooling and heating setpoints of 70 degrees, paints a rosier picture for a New Jersey hotel (Placet, et al., 2010).



The New Jersey's Clean Energy Program incentivizes buildings owners to create and implement an Energy Reduction Plan (ERP) (NJ Board of Public Utilities Office of Clean Energy , 2012). This plan can include both capital improvements and staff behavior initiatives, which is important as Kathyrn Webster states "implementing an on-going staff training plan in [an] energy management program can lead to significant energy savings" (Webster, 2000). E-Source and the AHLA make specific recommendations and savings estimates based upon behavior initiatives (American Hotel & Lodging Association). Recommendations include making adjustments in peripheral rooms, assuring employees cover pools and hot tubs after hours, and training housekeeping to adjust unoccupied room settings (E Source Companies LLC, 2004).

You Can't Manage what you Don't Measure

In 2010 the Pacific Northwest Laboratory (PNL) worked with a hotel of the InterContinental Hotel Group in Washington DC to complete a study of energy use patterns in hotels. The study concludes that heating and cooling accounts for nearly 60% of all electricity use. Kitchens consume another 8% of electricity and 25% of natural gas on site. Last, lighting accounts for approximately 7% of electricity. Despite these conclusions, the report directly identified only 84% of the electricity load in the hotel (Placet, et al., 2010). Implementing an Energy Dashboard, as HEI Hotels did, is a good step toward better understanding hotel energy use & the effectiveness of staff and guest behavioral campaigns (Environmental Protection Agency).

PROPOSALS

SCENARIO 1

The goal of Scenario 1 is complete all PIP requirements without any financial assistance from Marriott. An Energy Reduction Plan will be implemented during Year 1 that will include no-cost and behavior initiatives described in the literature review. Using the AHLA's estimates, implementing a linen and towel reuse program should save $26,000 each year (American Hotel & Lodging Association). Adjusting the common area cooling and heating setpoints to 73 and 67 will save an additional $46,000 annually. We estimate behavior modifications could reduce utility bills an additional 2-4% (based upon literature review). Last, leveraging incentives could bring at least $50,000 of capital to the project, including a critical $23,000 at the beginning for implementing an ERP (NJ Board of Public Utilities Office of Clean Energy , 2012).

If successful, the hotel can accomplish each ECM within five years by phasing projects as described below. In the event behavior training takes longer to deliver expected returns, the hotel will ask for a two-year extension to the PIP. Note that budgets for each scenario assume the hotel has not implemented any efficiency measures outside what is specified in the case and has not yet received rebates or incentives for any measures.

Scenario 1	Cash Flow (Jan.)	Expense	Annual Savings	Incentives	Projects
Year 1	$ -	$ -	$ 72,000	$ 23,000	ERP & Behavior
Year 2	$ 118,000	$ 50,000	$ 95,000	$ 11,000	Lights, Kitchen
Year 3	$ 174,000	$ 60,000	$ 115,000	$ -	Motors & Var. Volume
Year 4	$ 229,000	$ 160,000	$ 160,000	$ 7,060	Thermostats
Year 5	$ 236,000	$ 188,000	$ 182,000	$ 10,260	Chiller

An energy model predicts our savings from heating and cooling setpoint adjustments. Assuming the current cooling and heating setpoints are both 70 degrees. The table below shows predicted energy savings.

Cooling / Heating Setpoints	Gas Savings	Electricity Savings	Total Savings
71/69	$ 11,666	$ 6,260	$ 17,926
72/68	$ 19,554	$ 12,956	$ 32,509
73/67	$ 28,664	$ 17,705	$ 46,369

SCENARIO 2

Alternatively, Marriott could defer $420,000 of royalty fees this year. This will provide the hotel with the capital to complete all ECMs this year. The utility savings will be used to repay Marriott within five years. Note the budget has a $40,000 management contingency.

Scenario 2	Year 1	Year 2	Year 3	Year 4	Year 5
Investment	($420,000)				
Incentives	$ 80,000				
Accumulated savings (repayment)	$ -	$ 110,000	$ 110,000	$ 110,000	$ 110,000

With Marriott's participation, the hotel would still pursue no-cost and behavior initiatives and help develop a guide for greening other Marriott franchisees.

SCENARIO 3
"The availability of funds for new investments and improvement of existing hotels … depends in large measure on capital markets and liquidity factors, over which we can exert little control" (Marriott International Inc, 2012).

To expedite the greening of its brand – and create a shared financial responsibility and incentive for greening hotels - we propose Marriott create a revolving green loan fund to establish lending support for appropriate green improvements. This green fund will be a source of lending for approved green property improvements at franchise hotels. While helping Marriott lead the green hotel market, the established capital source will also help Marriott compete for new and renewing franchisees. Brand competition is the first risk factor noted in Marriott's 10k (Marriott International Inc, 2012). The franchisees will benefit from increased access to capital, increased property valuation and operating savings.

The concept is taken from energy performance contract models and existing green funds on university campuses. University funds vary in size from $40,000 to $25,000,000 and have a median annual return on investment of 32% (Weisbord, Dautremont-Smith, & Orlowski, 2011). Example projects include lighting upgrades, HVAC upgrades and improved pipe insulation. Marriott could lend money for green improvements recommended in an energy audit and be repaid through operating savings. Return requirements could be negotiated, but we expect returns between 15-30%. Additionally, Marriott could establish a separate 3% annual administration fee. Marriott could administer the fund directly or create a separate entity.

Institution	Established	Fund Size	Projects	ROI
Western Michigan University	1980	$ 365,000	101	47%
Harvard University	2001	$ 12,000,000	185	30%
University of Utah	2007	$ 220,000	47	30%
Iowa State University	2008	$ 3,000,000	11	29%
Oberlin College	2008	$ 40,000	9	31%
California Institute of Technology	2009	$ 8,000,000	13	33%
University of Denver	2009	$ 1,900,000	19	63%

(Weisbord, Dautremont-Smith, & Orlowski, 2011)

CONCLUSION

"A significant loss of [franchise] agreements due to premature terminations could hurt our financial performance and our ability to grow our business" (Marriott International Inc, 2012).

The existing relationship is beneficial to both Marriott and the franchisee. The scenarios proposed above offer the opportunity to improve Marriott's competitive advantage by enhancing Marriott's green brand, increasing revenue and strengthening a mutually beneficial relationship.

Works Cited

American Hotel & Lodging Association. (n.d.). *AHLA Green Initiative.* Retrieved Feb 21, 2012, from AHLA: http://www.ahla.com/uploadedFiles/AHLA/Members_Only/_Common/Minimum%20Green%20Guidelines.pdf

Better Buildings Case Competition, Hotel Case (2012).

Buildings Working Group (Auburn University). (n.d.). *Auburn Sustainability Projects.* Retrieved Feb 22, 2012, from Auburn University: http://www.auburn.edu/projects/sustainability/website/cap/cap_drafts/App5_Green_Loan_Proposal.pdf

Deloitte. (2008). *Deloitte Hospitality Research.* Retrieved Feb 19, 2012, from Deloitte Consulting: http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_cb_sustainability_190608(1).pdf

Environmental Protection Agency. (n.d.). *Energy Star.* Retrieved Feb 20, 2012, from EPA: http://www.energystar.gov/ia/business/hospitality/HEI_HotelsandResorts.pdf?6226-4903

Marriott Hotels. (n.d.). *Marriott Hotels Reservations*. Retrieved Feb 23, 2012, from Marriott Hotels: http://www.marriott.com/search/findHotels.mi

Marriott International Inc. (2012, Feb 16). *Edgar Online.* Retrieved Feb 18, 2012, from Securities & Exchange Commission: http://www.sec.gov/cgi-bin/browse-edgar?action=getcompany&CIK=0001048286&owner=exclude&count=40

NJ Board of Public Utilities Office of Clean Energy . (2012). *NJ Clean Energy Rebates*. Retrieved Feb 18, 2012, from New Jersey's Clean Energy Program: http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/equipment-incentives/equi

PEPCO. (2012). *PEPCO: Conserving Energy*. Retrieved Feb 15, 2012, from PEPCO: http://www.pepco.com/home/education/conserving/save/

Placet, M., katipamula, S., Liu, B., Dirks, J., Xie, Y., Sullivan, G., et al. (2010). Energy End-Use Patterns in Full-Service Hotels: A Case Study. *ACEEE Summer Study on Energy Efficiency in Buildings* (p. 14). Washington DC: American Council for an Energy Efficient Economy.

Webster, K. (2000). *Environmental Management in the Hospitality Industry: A Guide for Students and Managers.* College Learning EMEA.

Weisbord, D., Dautremont-Smith, J., & Orlowski, M. (2011). *Greening the Bottom Line: The Trend Toward Green Revolving Funds on Campus.* Cambridge: Sustainable Endowments Institute.