



Learnings and Value Additions Energy Efficiency at Mahinda Holidays & Resorts India Ltd. 14<sup>th</sup> Aug 2020

> Pristine Peaks by Club Mahindra, Naldehra, Himachal Pradesh



Mahindra Holidays & Resorts India Ltd. (MHRIL), a part of Leisure and Hospitality sector of the Mahindra Group, offers quality family holidays primarily through vacation ownership memberships and brings to the industry values such as reliability, trust and customer satisfaction. Started in 1996, the company's flagship brand 'Club Mahindra Holidays', today has a fast-growing customer base of over 250,000 members and 100+ resorts at some of the most exotic locations in India and abroad out of which 70 resorts are in India with total inventory of more than 3500 keys.

### **Sustainability Framework –** *Striving to Achieve mitigate climate change risk*





### Mahindra Holidays – Our Commitments to sustainability



MHRIL is India's first hospitality company to join the global campaign RE100 and EP100.

We believe these initiatives are in alignment with our mission of 'Good Living, Happy Families'.





#### HVAC – Constitutes 55% of energy cost

- All our public areas/ reception and lobby are designed a non airconditioned areas.
- 14/38 of our managed resorts do not have air conditioning and utilize passive cooling from environment.
- We are providing ceiling fans in addition to air conditioning on all our resorts, which allows guest to use fans instead of AC for most times and resulting in energy saving.
- We have eliminated CFC based refrigerant cooling in all properties
- Going forward all our resorts will only use energy efficient invertor based split ac or vrv system
- Centralized system with vfd based chillers with variable primary and secondary pumping.
- Revised our operating SOP and re-adjusted the set points of chiller to 8-9 Deg.
- For all our fixed speed AC installations, sub-zero controlling devise have been introduced to lock the room temp at 25 Deg in rooms as well as operating them at min pressure setting to make them more efficient.
- Stabilizers are provided with AC units to correct operating voltage to improve efficiency.
- Sectional Ventilation for kitchen instead of central ventilation with VFD.
- Roof coating to reduce heat gain.
- Using Heat recovery systems wherever feasible.
- All rooms lighting has been changed to LED to reduce heating load.
- Solar installation on roof top helps in reducing heat gain from roof by providing shading.



#### Diesel

- Installation of Heat pump for hot water generation
- Use of digital diesel meters for online monitoring fuel efficiency gensets using IOT, implemented in 12 resorts.
- Right sizing the gensets as per peak and off peak load to optimize consumption.
- Automatic Voltage Regulators installed at mains to improve power quality and minimize genset operation.
- We have replaced diesel boilers/ hot water generators in all our resorts with heat pump.
- Use of electric vehicles inside resorts

#### Electrical – Constitutes ~25% of our energy Cost

- Replaced conventional ceiling fans with energy efficient Brush Less DC fans. Replaced ~ 2,000 fans so far and still ongoing.
- IOT based energy management system implemented in 12 resorts for online monitoring of consumption / load pattern analysis and real time alerts.
- Solar lighting in external areas
- LED light fixtures
- Timer controlled light
- Installed motion/ occupancy sensor in common areas and toilets in 12 resorts.

#### Water

- Water conservation through the 4 R principles Reduce, Reuse, Recycle and Rainwater Harvesting
- We have installed water flow restrictors in all our resorts.
- STP water is used for irrigation and flushing.
- IOT based real time monitoring system for STP parameters installed in 12 resorts.
- Rain water ponds are created within resort to store rain water.
- Encourage guests to Reuse towel/ linen to avoid the changing of their room bed linen on a daily basis.

## **Progress** – Journey so far..



- ✤ We have saved ~15% energy compared to last year for our cooling applications
- Solar Power is streaming in at 7 of our resorts.
- 21.7 million kwh generated in FY20 resulting in Rs 1.10 Cr of savings in energy cost.
- We have saved 1.91 lac units despite higher occupancy in FY20.
- We have achieved 67% lesser diesel consumption as compared to last year for hot water.

#### Energy productivity has improved to 81% from our 2008-09 baselines, improvement by ~20% over last year.

- 6 Resorts are Water Positive .
- We utilized 275 million litres of harvested rainwater across our resorts.
- ✤ 50% of total water consumed by our resorts was recycled in 2019-20

Achieved more than 156 million litres of water savings as compared to last year in FY20.

In one of our property at Madikeri with 220 room resort, we have been able to achieve comfortable indoor conditions by enhancing plantation and managing temperature less than 1.5 Deg C compared to surroundings eliminating the need of air conditioning.

# **Some Milestones** – *Highlights of Work in Progress*





year of 2016

#### **Operating SOPs** – Continue learning and improving and implementing operating SOPs

- Intervention by SOP is absolutely must do and presents a low hanging opportunity to make substantial difference by eliminating wastages.
- One example we revisited the specification/ thickness of duvet and instead of using standard thickness in all locations/ climate conditions, duvet thickness appropriate to the climate conditions is thinner duvet in hot climates and thicker ones in cold climates are being introduced to make it comfortable at the same time reduce cooling requirement.
- Monitoring and adjusting set points by revising our operating SOP (re-adjusted the set points of chiller to 8-9 Deg)
- In our experience efficient /right operating SOP can result in saving of 3-4 % of energy consumption.

**Measurement** - We manage only when we can measure!!

- Exploit the potential of IOT in energy/ water management and redefining operating practices
- Room automation to improve energy efficiency to track and monitor consumption in guest rooms.
- We try to use available room/ year as a common parameter for measuring all our energy consumption performance and we have installed meters for Electricity/ Water/ Diesel/ Gas and monitor yearly performance.
- We are currently operating at 30 Kwh/ available room/ year and targeting it to bring it down to 27-28 Kwh/ available room/ year over all our asset portfolio in two to three years.

#### **Design** – Passive cooling must be maximized and incorporated in design itself

- Enhancing the ambient conditions by plantations/ water bodies go a long way in extracting passive cooling advantage. Heat recoveries/ pre-cooling, studying the wind pattern to maximize natural ventilations and use of absorption cooling in dry climates are some of the options available which can also improve energy efficiency even in urban environment to some extent.
- Design efficiency for new developments by right sizing the generators, energy modeling, optimize routing to minimize transmission losses and energy efficient equipment.
- New resort at Ratnagiri is being targeted for "Gold LEED" rating.
- Continue emphasis on following the 4 R principles (Reduce, Reuse, Recycle and Rainwater Harvesting).
- Rainwater harvesting system implementation in another 19 resorts by 2024.
- ZLD based STP plants. Design STP for separate gray and black water treatment to improve recyclable output and target to achieve close to 100% recovery/ reuse.
- Used only 26% plot area for construction of resort and keeping 74% plot area for maintaining tree cover.
- Target Carbon neutral resorts by increased plantations.



**Technology** – Continue to invest in Energy efficient equipment and alternate source of energy

- Continue our investment in Solar installation/ renewable energy
- 5 more resorts more will be added by the end of this financial year (Poovar, Ashtamudi, Munnar, Varca And Emerald Palms).
- Solar Air conditioners
- Outdoor solar lights for our landscape areas.
- Expand solar usage to water heating
- Radiant cooling
- Heat pump/ thermodynamic heating system
- Eliminate/ further minimize diesel consumption by using smart inverter
- Inverter based ACs and BLDC motors
- Exploring heating blankets (low voltage) for localized heating
- LED Lighting with motion sensors/ timers.
- Energy audits and peer audits
- Sharing best practices

# **Recognition** – Awards and Accolades 2019





Awarded the **Certificate of Merit** – **Challengers Category** by **Frost & Sullivan** and **TERI** at the 10th edition of 'Sustainability 4.0 Awards' for demonstrating effective deployment of Sustainable Development practices.



ZWL certification for *Virajpet* by Intertek.



*Club Mahindra Gangtok* was awarded the **BEST ECO FRIENDLY** RESORT, Sikkim ,from Govt of Sikkim.



Won the Bombay Chamber Civic Awards for the year 2018-19 under the **Sustainable Environmental Initiative** category. Special Recognition - (Conservation of natural resources & Waste Management)



Received **Mahindra Rise** award for the group in sustainability



Burhanuddin Sayyed- Corporate Chief Engineer- received award for sustainability champion within group in Mahindra Rise Awards.





# Thank you

### Contact for questions: Salil.khare@Mahindrahoildays.com