

# La Ronda Chocolate Factory

Dubai 2018

25.7%

Central Air  
Handling UnitsEC Fans &  
DCV Control17.7% Savings  
AED 134,429 yr @ ROI 0.8 yr

8%

51%

Pactive Sustainable Solutions utilised the power of IESVE Dynamic Simulation Energy Modelling to identify, demonstrate and verify the Impact of Change through performance retrofits to an existing chocolate factory in Dubai.

## Key Facts

- 70% renewable energy contribution and carbon reduction
- 35-40% additional energy savings unlocked utilising IESVE
- 50-80% electrical savings
- IESVE linked to Energy Management system to monitor and report operation

## The Sweetness of Performance Retrofitting

Pactive Sustainable Solutions utilised the power of IESVE Dynamic Simulation Energy Modelling to identify, demonstrate and verify the Impact of Change through performance retrofits to an existing chocolate factory in Dubai. Notions Group, the brain child of Fawaz Masri, CEO, is a leading brand creator, manufacturer and exporter of snacks and confectionaries to some of the biggest retailers in the region.

The La Ronda factory located in the heart of Dubai Investment Park forms the jewel in Notions Group property portfolio. With state of the art manufacturing, storage and headquarter facilities co-located, each has their own technical demands and challenges. Central to Notions Group's corporate values is their awareness of global warming issues and the opportunity to contribute positively as a socially responsible business. This is demonstrated by the group having already implemented use of LED lighting throughout and extensive roof top photovoltaic arrays covering some 3500m<sup>2</sup> equating to 70% renewable energy contribution and carbon reduction.

This culture is championed by Omar Masri, General Manager, and supported by his engineering team led by Rajashekar R. Commenting on this, Omar Masri said, "We felt it important to lead through innovative sustainability initiatives with the likes of PV's, rather than a purely profit centric approach. This allows us to make the best of our available solar levels while positively contributing to carbon footprint reductions, and hopefully in a small part the slowing of global warming. After seeing the approach and use of the modelling platform, above others, we selected to form a long term association with Pactive's team. This decision was further bolstered by the diversity of the solutions presented as well as their potential to bring us closer to our CEO's vision of a zero carbon footprint factory".

Extending past simply renewables of existing energy footprints, Pactive's focused on Mean Tier of the Energy Hierarchy in terms of improving existing efficiencies to achieve reductions within existing systems, undertaking detailed survey, measurement and analysis in order to identify a range of improvements, big and small, to existing HVAC Systems and equipment.

As described by Neil MacDonald, Pactive's lead, "Knowing the power dynamic simulation modelling holds, we utilised IESVE not only to define the savings for like for like changeover from conventional AC fan motors, for example to the latest technology ebm-papst EC Fans, but also through back engineering could unlock further savings - typically around additional 35-45% - resulting from inclusion of demand control ventilation as well as any oversizing inefficiencies left over from the original building and systems design. With electrical savings, more often than not, well past the 50% and into the 80's for solutions, each accurately quantified ahead of decision to implement".

The building and systems model provided a holistic and very detailed picture of the energy profiles, picking up the integrated nature of the systems with changes extending to:

- Replacement Air Handling Units (AHU's) with an array of EC Fans offering efficiencies, system redundancy as well significant reductions in maintenance demands and life cycle replacement at overall 68% unit electrical saving.
- Replacement of Secondary Fan Coil Unit (FCU's) blower fans, motors and controls throughout the manufacturing, storage, distribution and office components of the building all within Return On Investment (ROI) of under two and half years.
- Replacement of CHW Distribution pumps using Armstrong's Building Design Envelope selection and smart sensorless algorithm control with 76% savings and ROI of 1.75 yrs.
- Overall health check and refresh of the systems and their BMS methodologies.

While the IESVE assisted in quantifying Impact of Change to support the decision making by Notions, it holds further value and return by being linked to La Ronda's existing Energy Management System and used to continuously monitor and report operation of the buildings HVAC systems, providing the platform for operational performance gap analysis (PGA).

Following the successful implementation of this integrated approach, similar activities are being planned for Notions Group wider property portfolio, stretching to their savoury foods plant Star Foods located in Hail, which is the agriculture and food heart of Saudi Arabia.

