



Energy analysis according to BREEAM assessment method

**ATLAS BASIC
743844**

29/3/2023



First Credit: Types comparison



Second Credit: ECO options

1. What is BREEAM

BREEAM (Building Research Environmental Assessment Method) is an assessment method for master-planning projects, infrastructure and buildings. It addresses a number of lifecycle's stages such as New Construction, Refurbishment and In-Use.

The BREEAM assessment process evaluates the procurement, design, construction and operation of a development against targets that are based on performance benchmarks. Assessments are certified on a scale of Pass, Good, Very Good, Excellent and Outstanding.

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2. Lift installations—Energy efficient transportation systems

The aim of BREEAM is to recognize and encourage the specification of energy-efficient transportation systems. For the case of lift installations that aim is supposed to be fulfilled through two assessment criteria.

2.1 First credit

- For specified lifts:
 - Analyze the transportation demand and usage patterns for the building to determine the optimum number and size of lifts
 - Calculate the energy consumption in accordance with BS EN ISO 25745 Part 2 for one of the following:
 - At least two options for each transportation type (e.g. for lifts, hydraulic, traction or machine room-less (MRL)) OR
 - At least two options considering different system arrangements and control strategies.
 - Consider the use of regenerative drives, subject to the requirements in Regenerative drives
 - Specify the transportation system with the lowest energy consumption.

KLEEMANN provides a traffic analysis for your building in order to determine the optimum design of the vertical transportation equipment. Furthermore, KLEEMANN provides energy consumption estimation report for the comparison of at least two possible lift types.

2.2 Second credit

- The first credit is achieved.
- Specify the following three energy efficient features for each lift:
 - A standby condition for off-peak periods
 - The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of > 70 luminaire lumens per circuit Watt
 - Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.
- Specify regenerative drives where their use is demonstrated to save energy.

3. Analysis

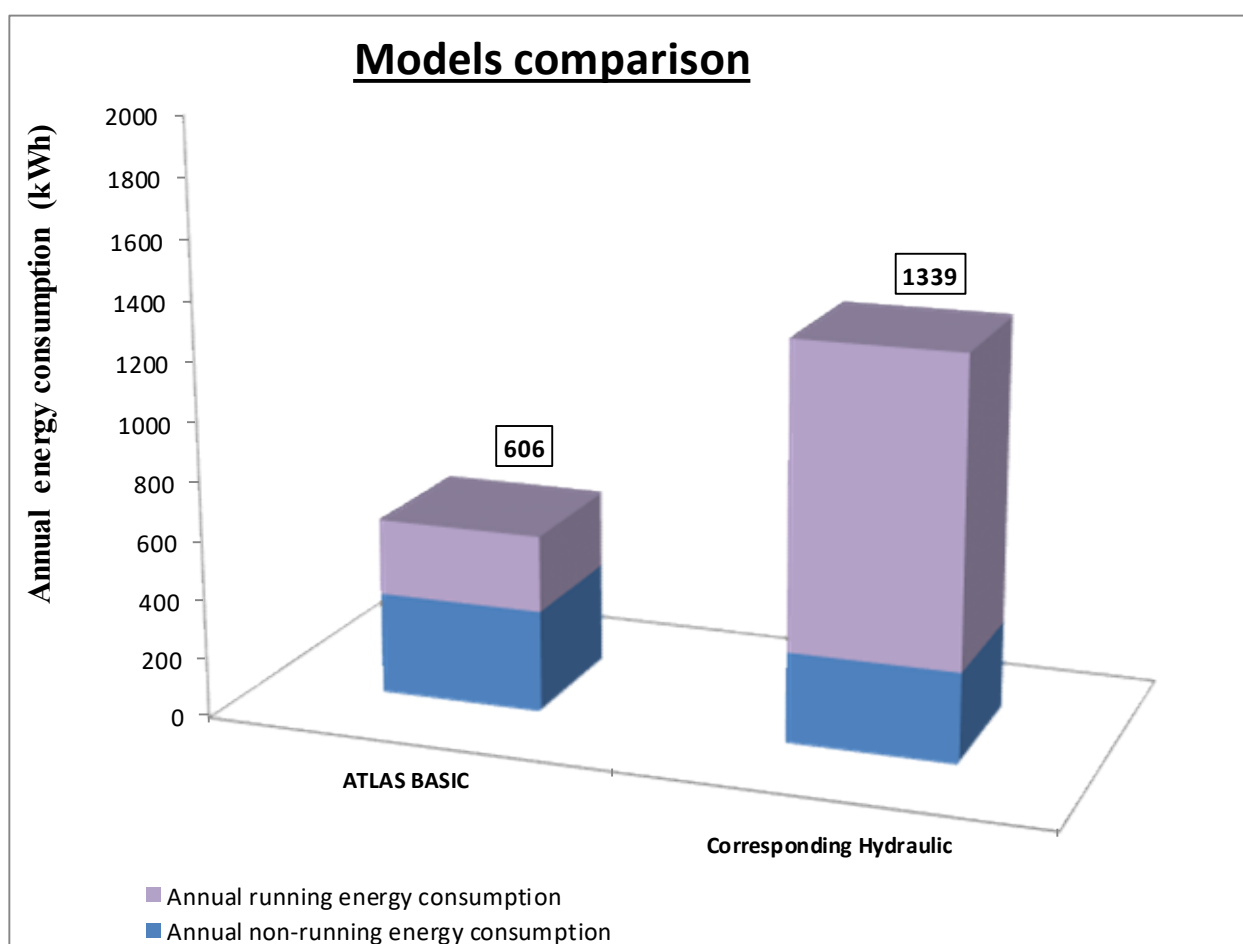
3.1 First credit achievement

Specifications of two lifts' model:

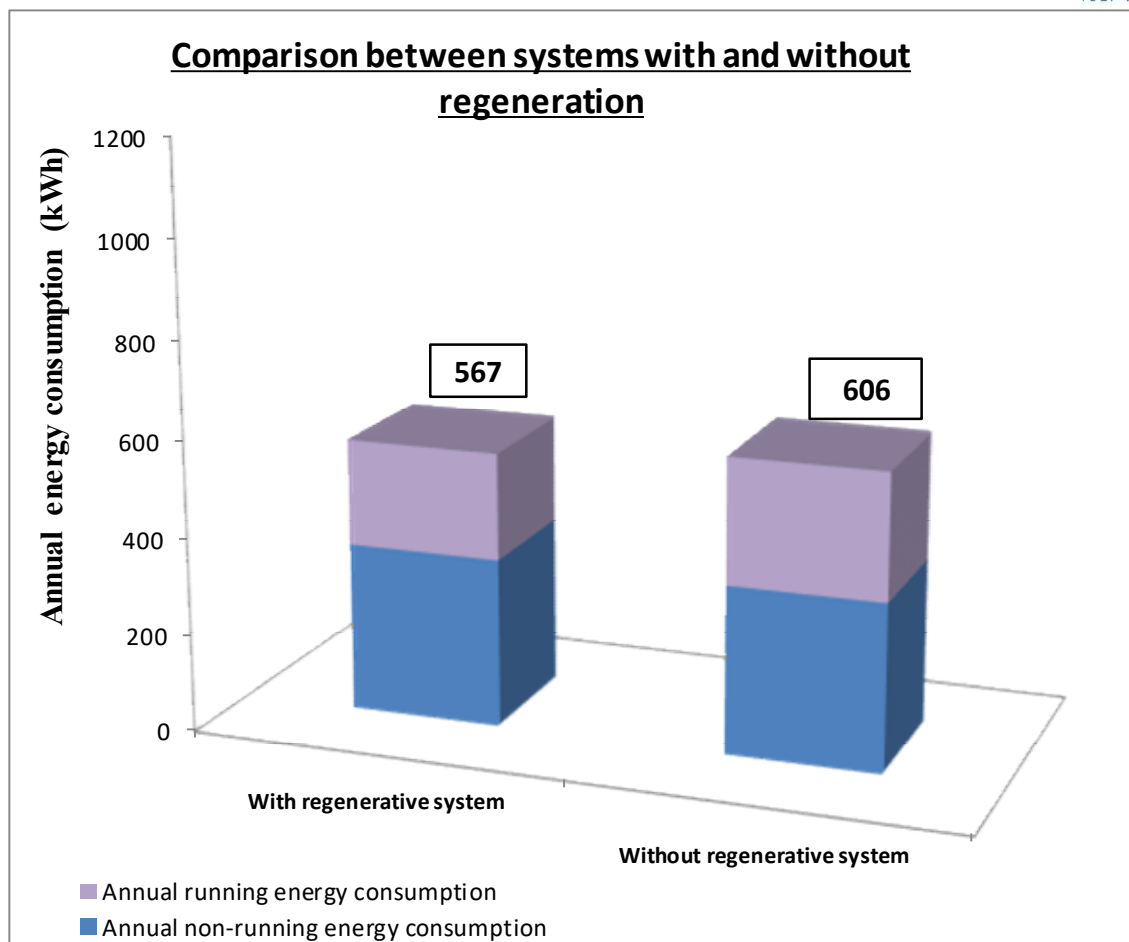
Type	Traction	Corresponding Hydraulic
	ATLAS BASIC	
Rated load (kg)	1000	1000
Rated speed (m/s)	1	1
Travel (m)	16,000	16,000
Motor / Drive	Gearless / VVVF	Hydraulic power unit
Stops	6	6
Standby demand (W)	33	33
Travel demand in a reference trip (Wh)	36	144

The following table shows the energy efficiency class, for the cases of a traction and a corresponding hydraulic lift with the same basic characteristics, for a particular number of trips per day as well as the annual energy consumption calculated according to ISO 25745-2.

Type of drive	Traction	Hydraulic
Trips per day	100	100
Usage category	2	2
Energy class	A	C
Annual energy demand (kWh)	606	1339



The use of regenerative drives should be considered when it produces an energy saving greater than the additional standby energy to support the drives. In order to check if the regenerative system produces more energy than the energy it needs, an analysis has been carried out. Using EN ISO 25745 – 2 two calculations have been made: The lift consumption in a year with and without regenerative system.



The previous results prove that the first credit is achieved.

3.2 Second credit achievement

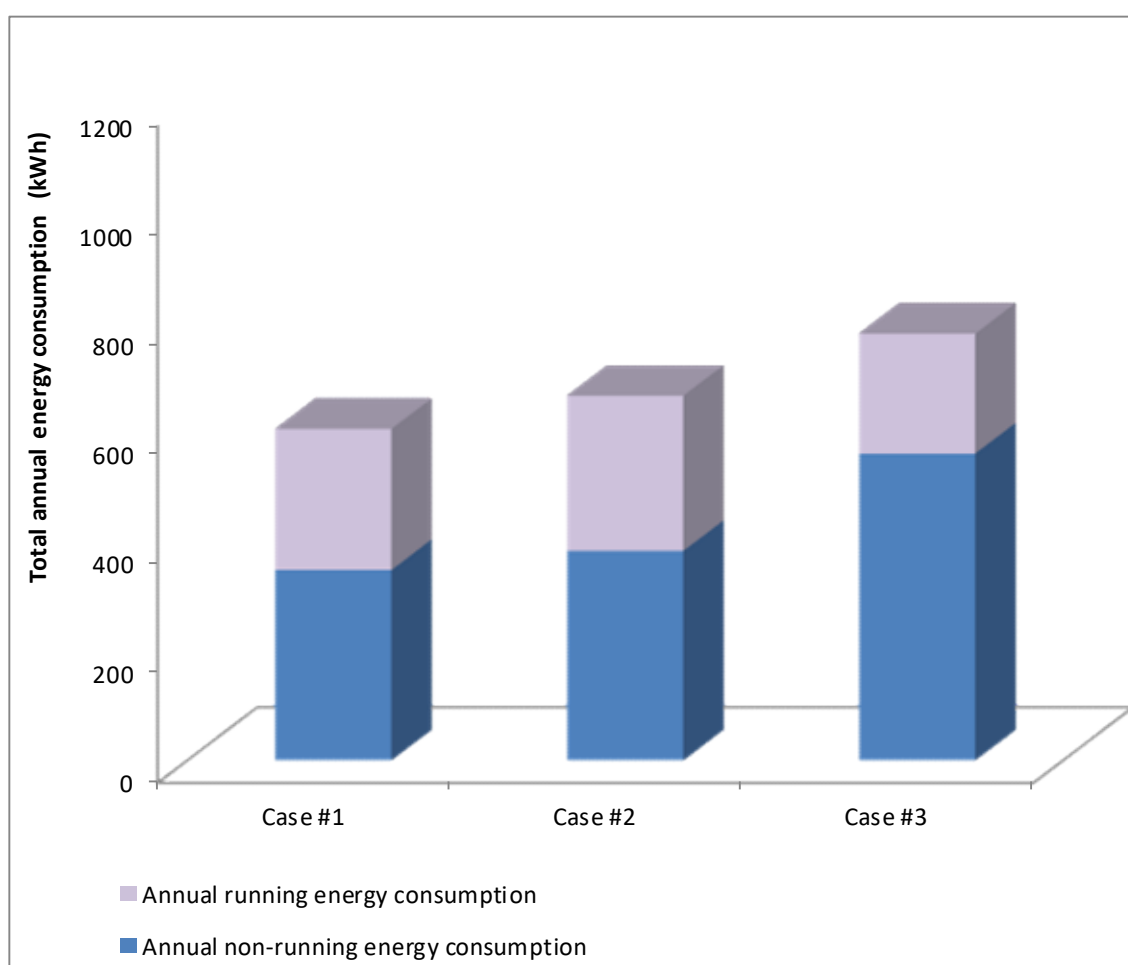
BREEAM recommends using the three best energy efficient solutions from the four available options. It should be mentioned that KLEEMANN's traction lifts can meet all the above criteria i, ii, iii and iv. If a regenerative drive be required then VVVF drive shall be used (regeneration system is not possible without a VVVF). This means that selecting the combination of Standby mode + LEDs + Regeneration is not possible.

For the reason mentioned above we consider the VVVF as mandatory and we have to select the best two from remaining options (Standby mode, LEDs, Regeneration system).

Assuming 100 trips per day it is calculated according to ISO 25745-2 that the annual time in travel in hours is: 130,18

The results below are extracted by KLEEMAN ISO 25745-2 calculation software.

	Case #1	Case #2	Case #3
1st option	<i>Standby mode</i>	<i>Standby mode</i>	<i>LEDs lighting</i>
2nd option	<i>LEDs lighting</i>	<i>Regeneration</i>	<i>Regeneration</i>
Annual running energy consumption (kWh)	258	283	219
Annual non-running energy consumption (kWh)	348	383	561
Total annual energy consumption (kWh)	606	666	780



Conclusion: From the results above is obvious that the best two remaining options are for Case #1.

The previous results prove that the second credit is achieved.



Energy analysis according to BREEAM assessment method

**ATLAS RPH R
751766**

29/3/2023



First Credit: Types comparison



Second Credit: ECO options

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- For specified lifts:
 - Analyze the transportation demand and usage patterns for the building to determine the optimum number and size of lifts
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 - Specify the transportation system with the lowest energy consumption.

KLEEMANN provides a traffic analysis for your building in order to determine the optimum design of the vertical transportation equipment. Furthermore, KLEEMANN provides energy consumption estimation report for the comparison of at least two possible lift types.

2.2 Second credit

- The first credit is achieved.
- Specify the following three energy efficient features for each lift:
 - A standby condition for off-peak periods
 - The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of > 70 luminaire lumens per circuit Watt
 - Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.
- Specify regenerative drives where their use is demonstrated to save energy.

3. Analysis

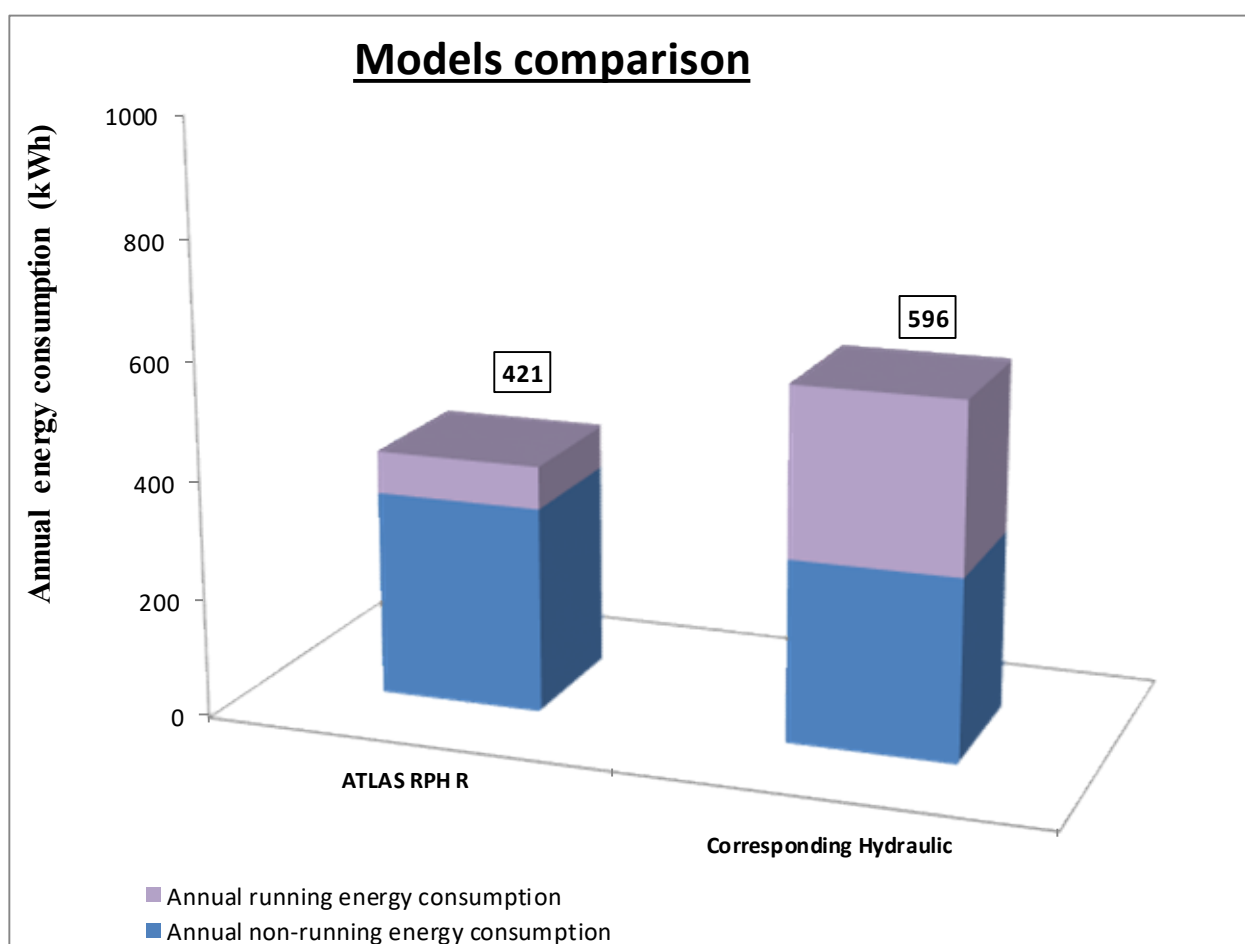
3.1 First credit achievement

Specifications of two lifts' model:

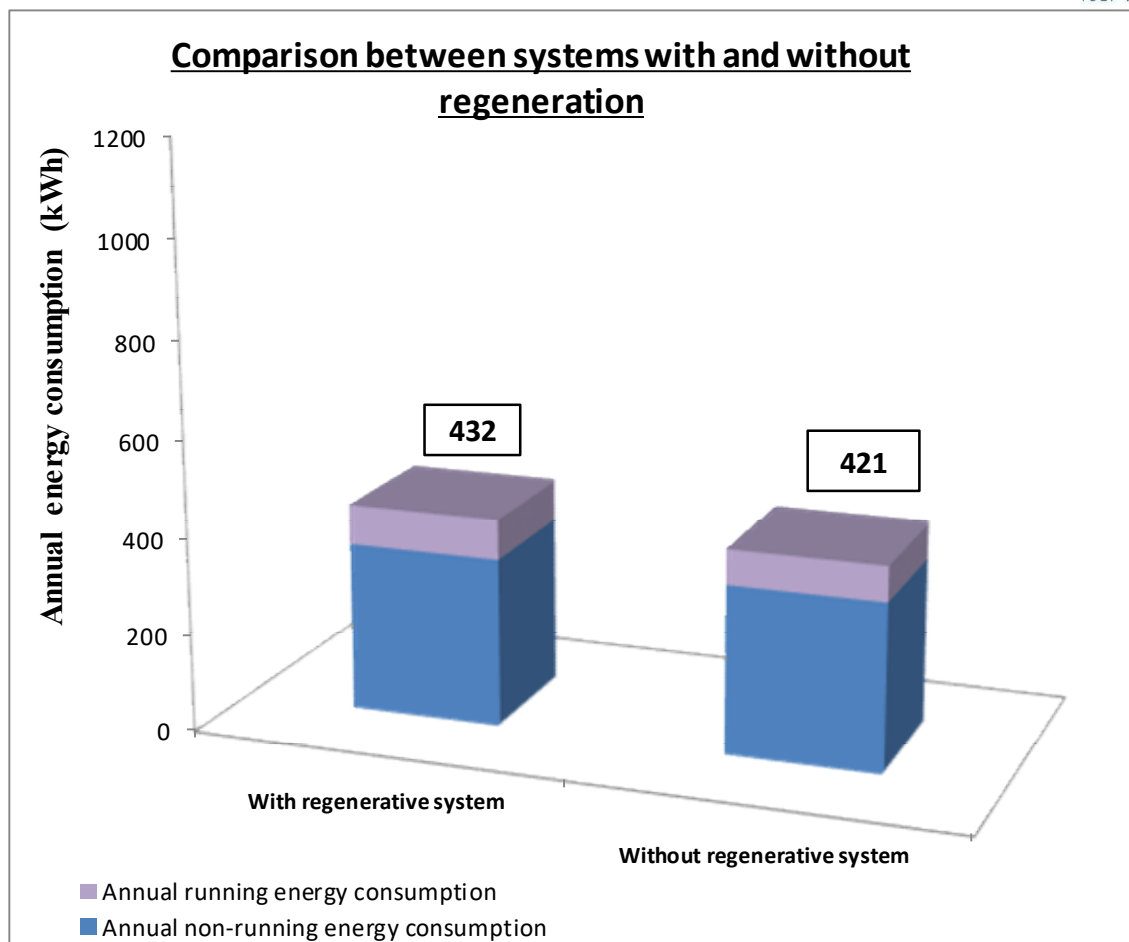
Type	Traction	Corresponding Hydraulic
	ATLAS RPH R	
Rated load (kg)	450	450
Rated speed (m/s)	1	1
Travel (m)	9,782	9,782
Motor / Drive	Gearless / VVVF	Hydraulic power unit
Stops	4	4
Standby demand (W)	33	33
Travel demand in a reference trip (Wh)	10	40

The following table shows the energy efficiency class, for the cases of a traction and a corresponding hydraulic lift with the same basic characteristics, for a particular number of trips per day as well as the annual energy consumption calculated according to ISO 25745-2.

Type of drive	Traction	Hydraulic
Trips per day	100	100
Usage category	2	2
Energy class	A	B
Annual energy demand (kWh)	421	596



The use of regenerative drives should be considered when it produces an energy saving greater than the additional standby energy to support the drives. In order to check if the regenerative system produces more energy than the energy it needs, an analysis has been carried out. Using EN ISO 25745 – 2 two calculations have been made: The lift consumption in a year with and without regenerative system.



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3.2 Second credit achievement

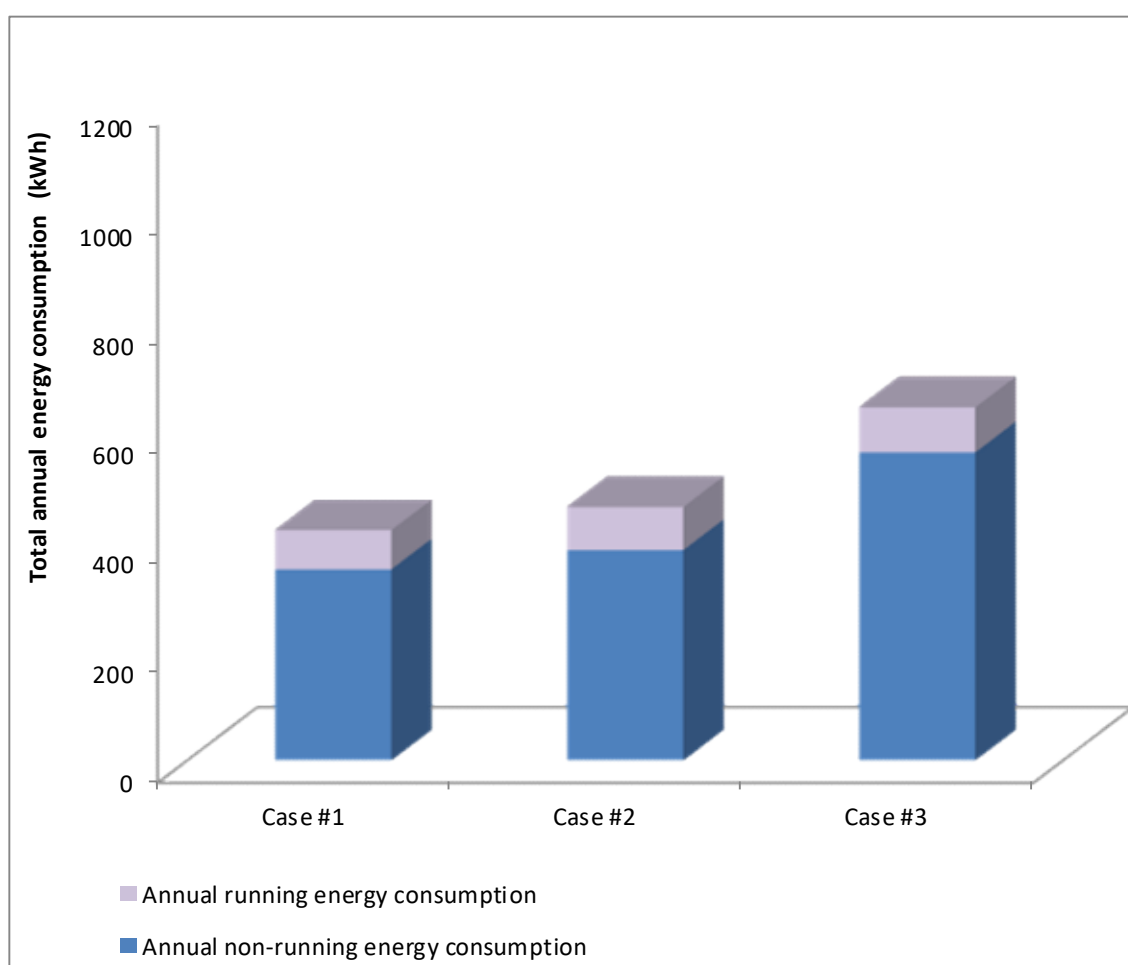
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For the reason mentioned above we consider the VVVF as mandatory and we have to select the best two from remaining options (Standby mode, LEDs, Regeneration system).

Assuming 100 trips per day it is calculated according to ISO 25745-2 that the annual time in travel in hours is: 99,29

The results below are extracted by KLEEMAN ISO 25745-2 calculation software.

	Case #1	Case #2	Case #3
1st option	<i>Standby mode</i>	<i>Standby mode</i>	<i>LEDs lighting</i>
2nd option	<i>LEDs lighting</i>	<i>Regeneration</i>	<i>Regeneration</i>
Annual running energy consumption (kWh)	72	79	82
Annual non-running energy consumption (kWh)	350	385	563
Total annual energy consumption (kWh)	421	463	645



Conclusion: From the results above is obvious that the best two remaining options are for Case #1.

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**ATLAS RPH R
751767**

29/3/2023



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Second Credit: ECO options

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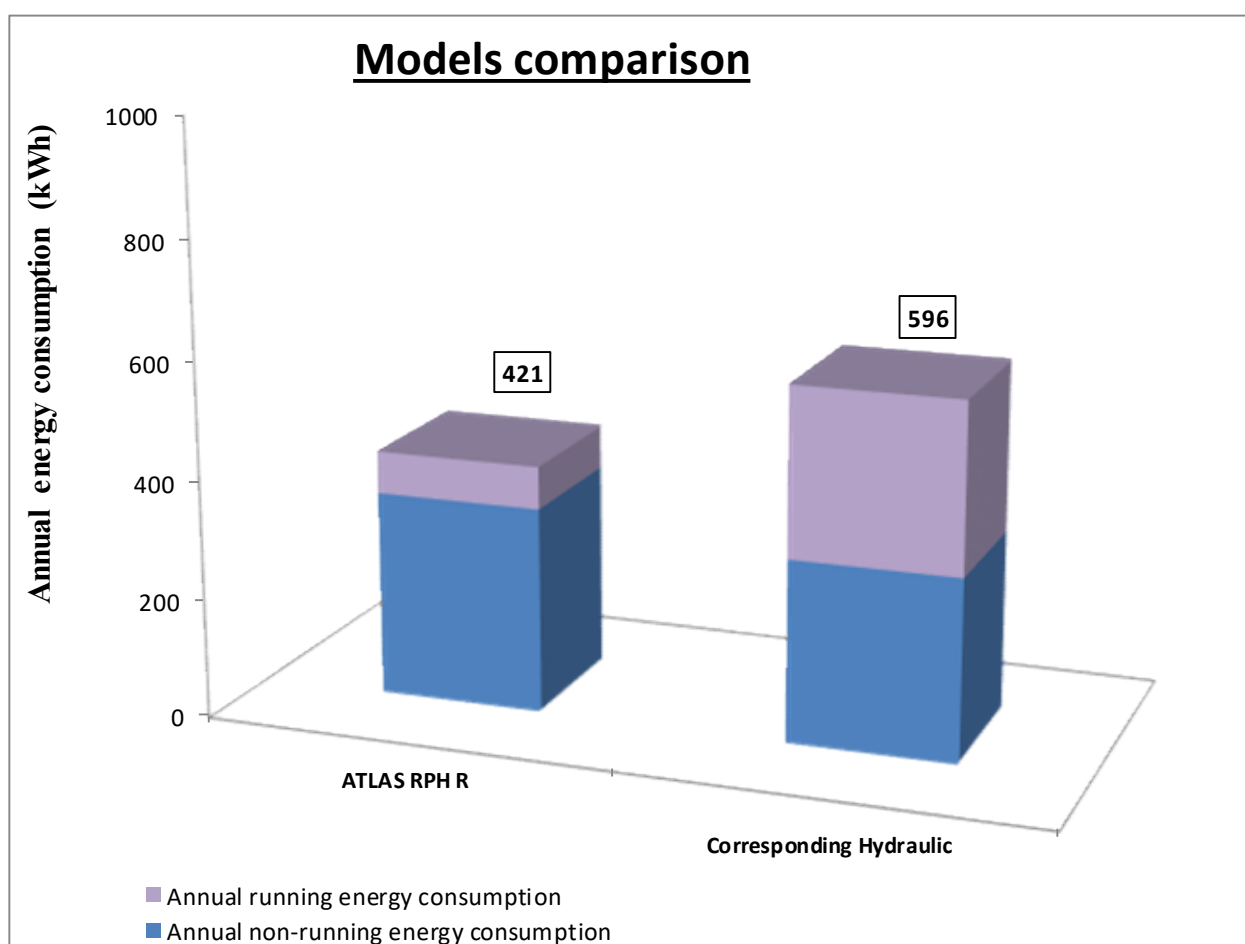
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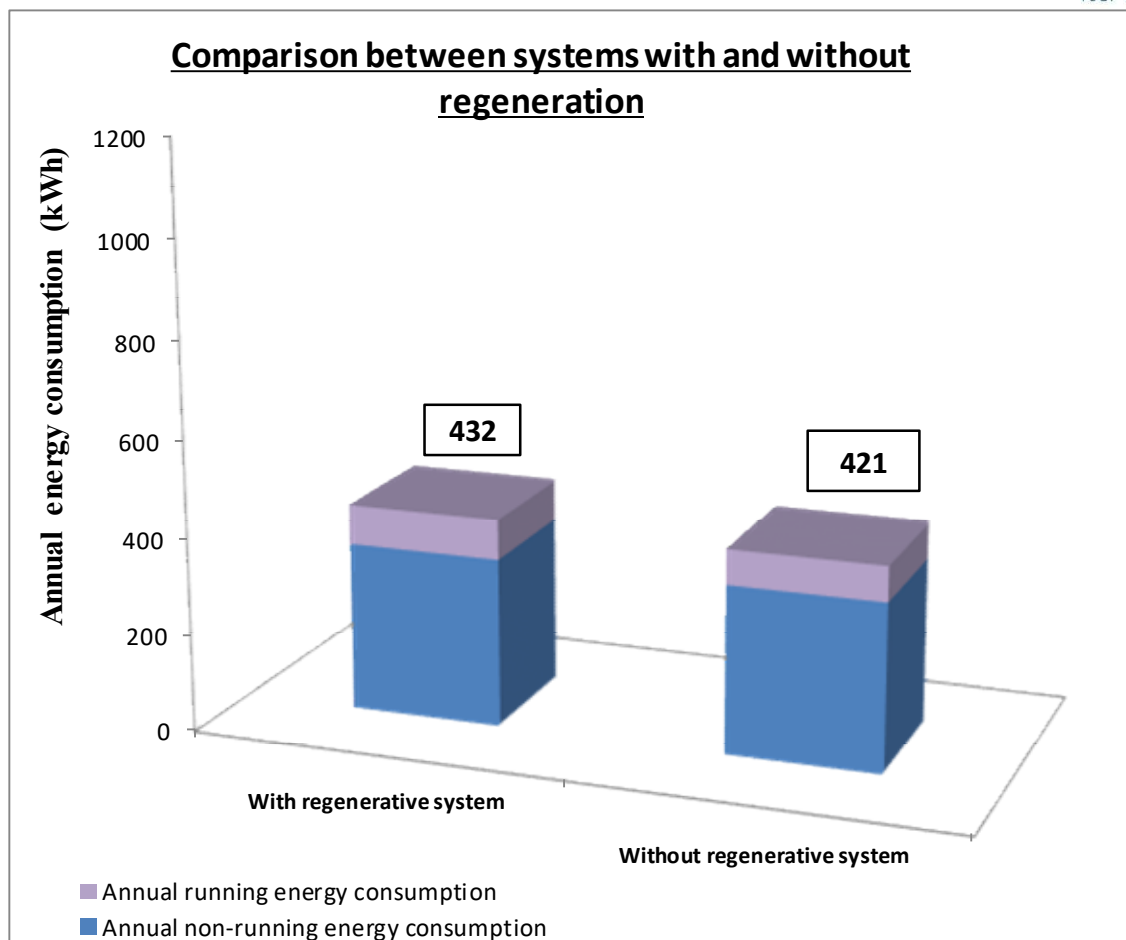
Type	Traction	Corresponding Hydraulic
	ATLAS RPH R	
Rated load (kg)	450	450
Rated speed (m/s)	1	1
Travel (m)	9,857	9,857
Motor / Drive	Gearless / VVVF	Hydraulic power unit
Stops	4	4
Standby demand (W)	33	33
Travel demand in a reference trip (Wh)	10	40

The following table shows the energy efficiency class, for the cases of a traction and a corresponding hydraulic lift with the same basic characteristics, for a particular number of trips per day as well as the annual energy consumption calculated according to ISO 25745-2.

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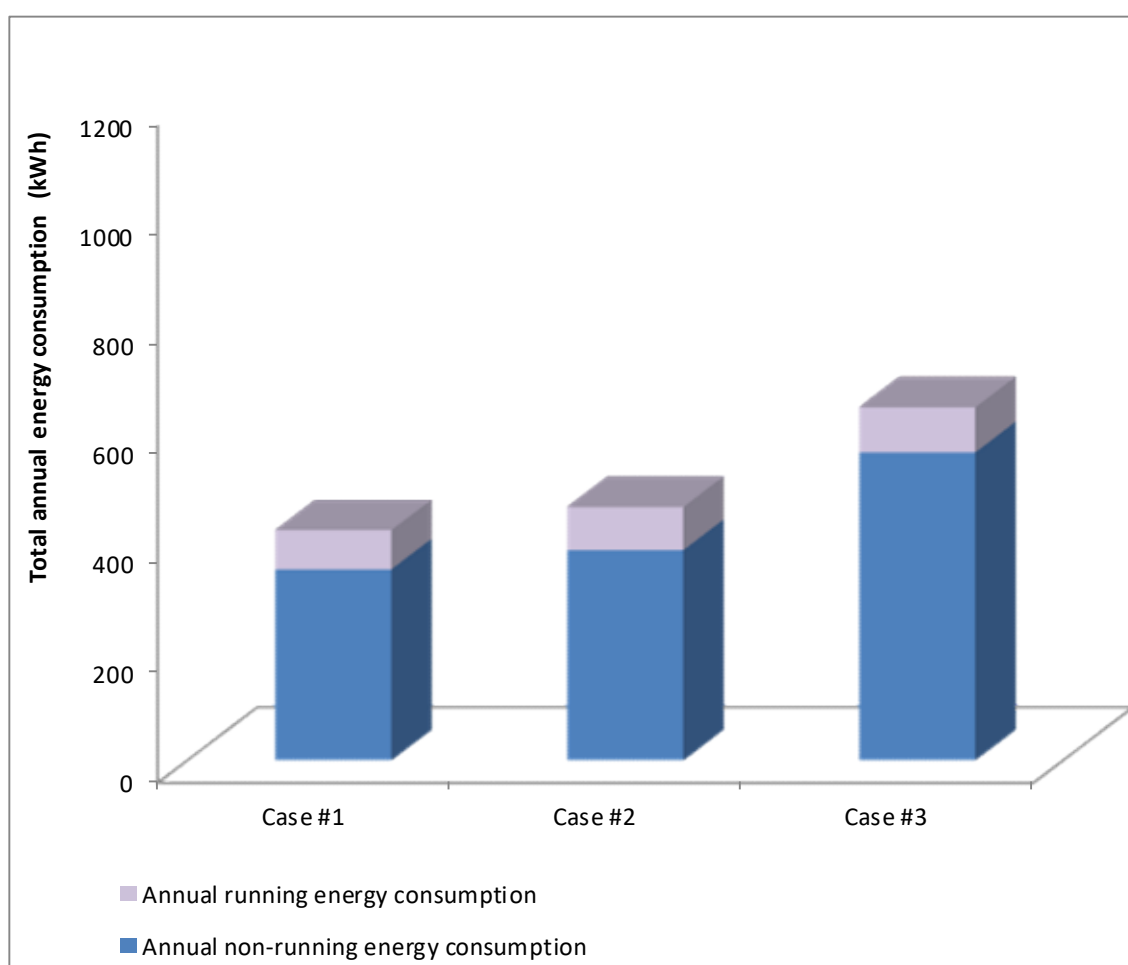
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**ATLAS BASIC
741805**

29/3/2023



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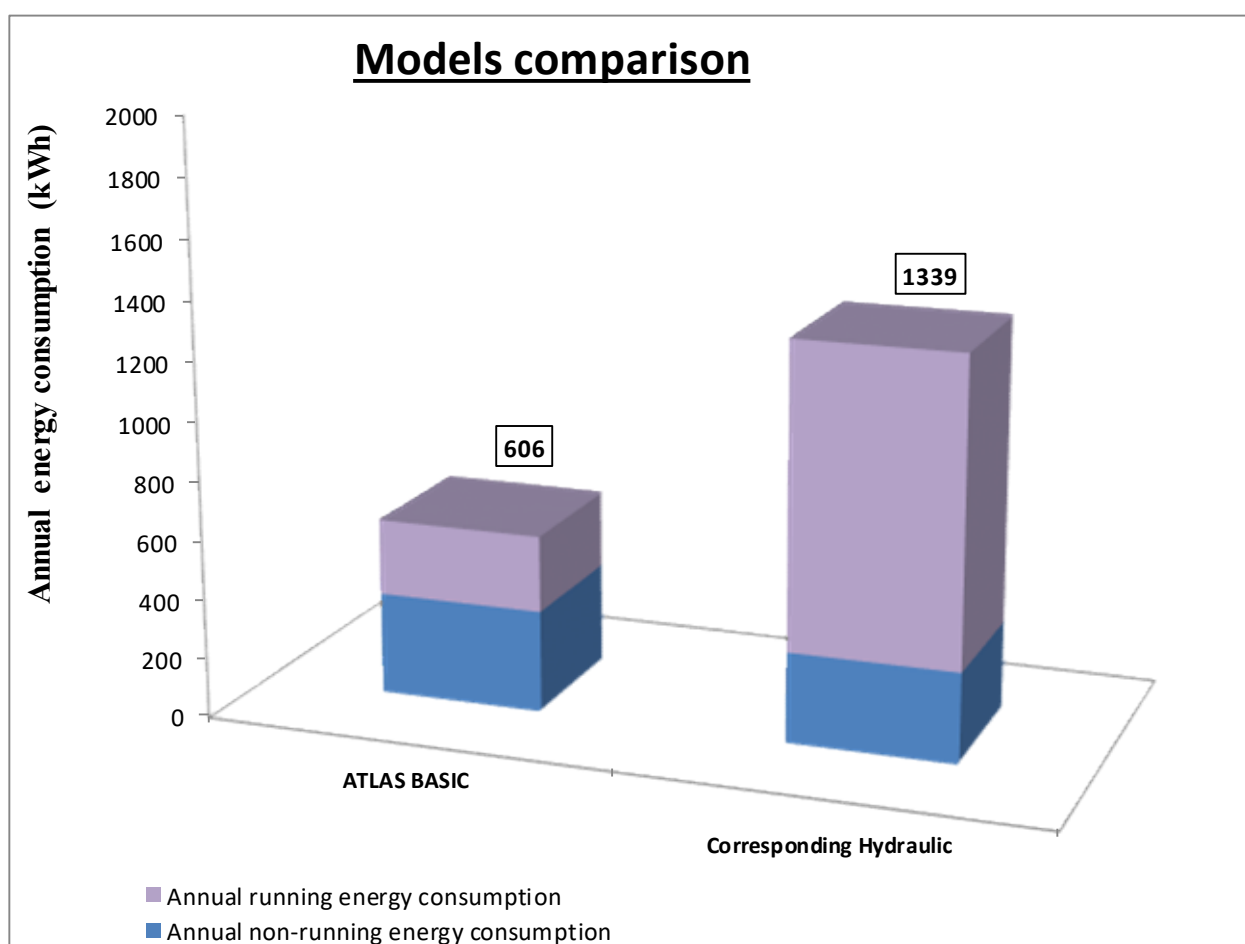
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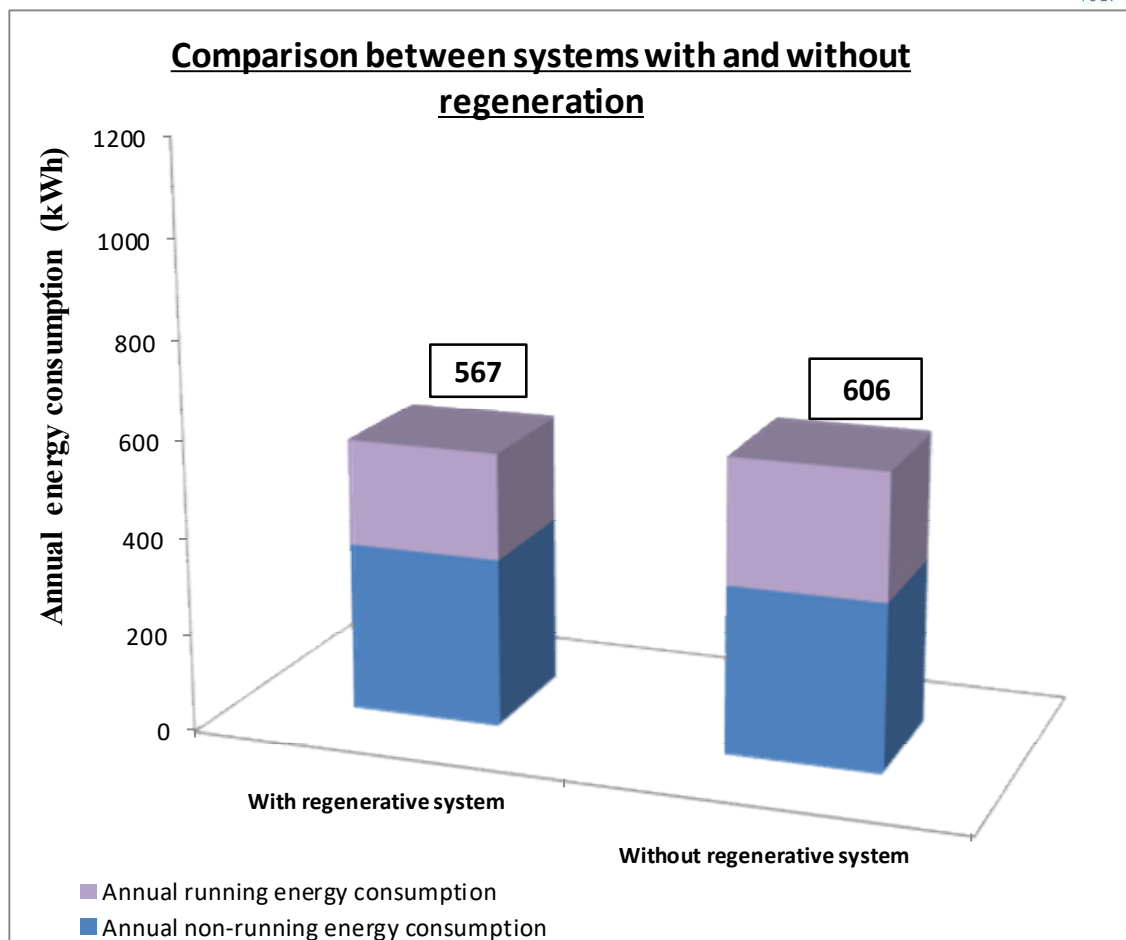
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	ATLAS BASIC	
Rated load (kg)	1000	1000
Rated speed (m/s)	1	1
Travel (m)	16,000	16,000
Motor / Drive	Gearless / VVVF	Hydraulic power unit
Stops	6	6
Standby demand (W)	33	33
Travel demand in a reference trip (Wh)	36	144

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Usage category	2	2
Energy class	A	C
Annual energy demand (kWh)	606	1339



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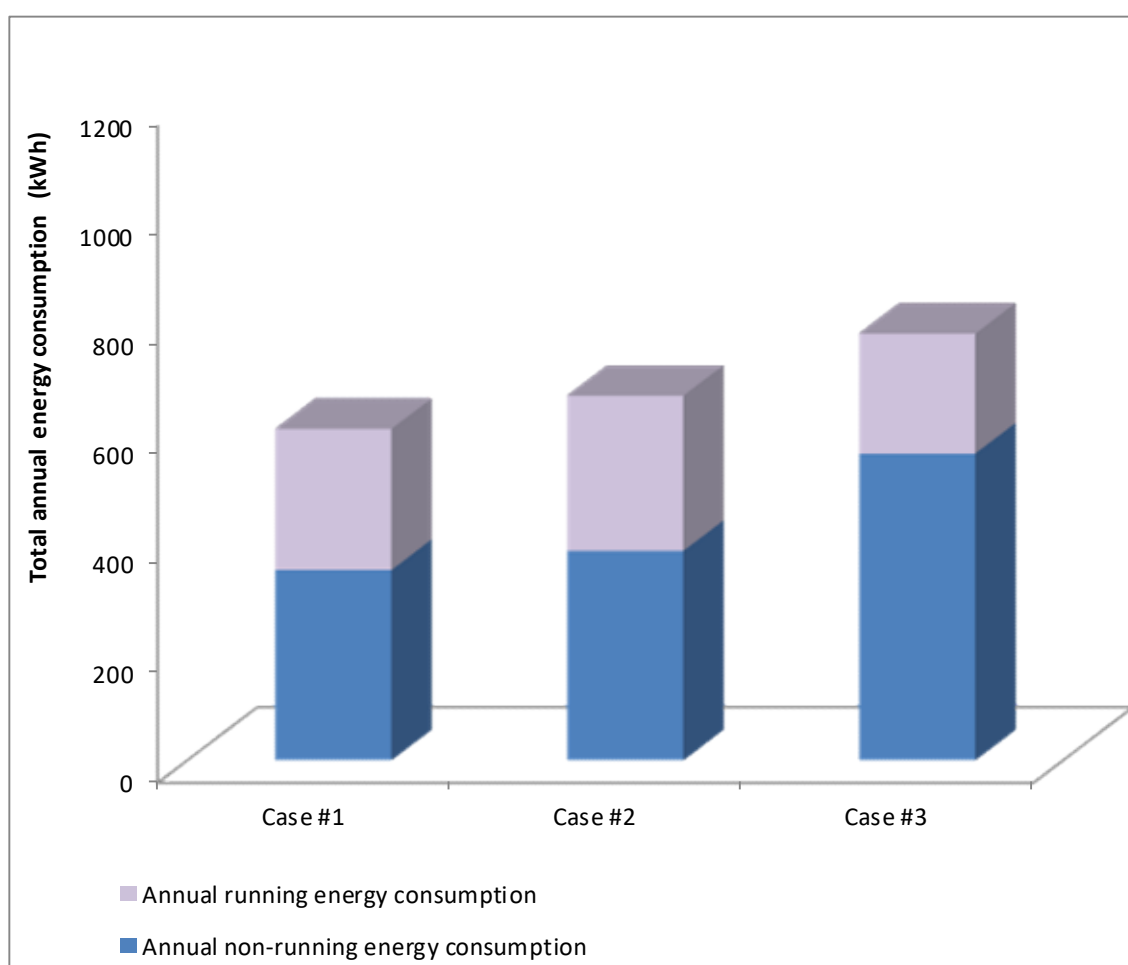
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**GIGAS R
743843**

29/3/2023



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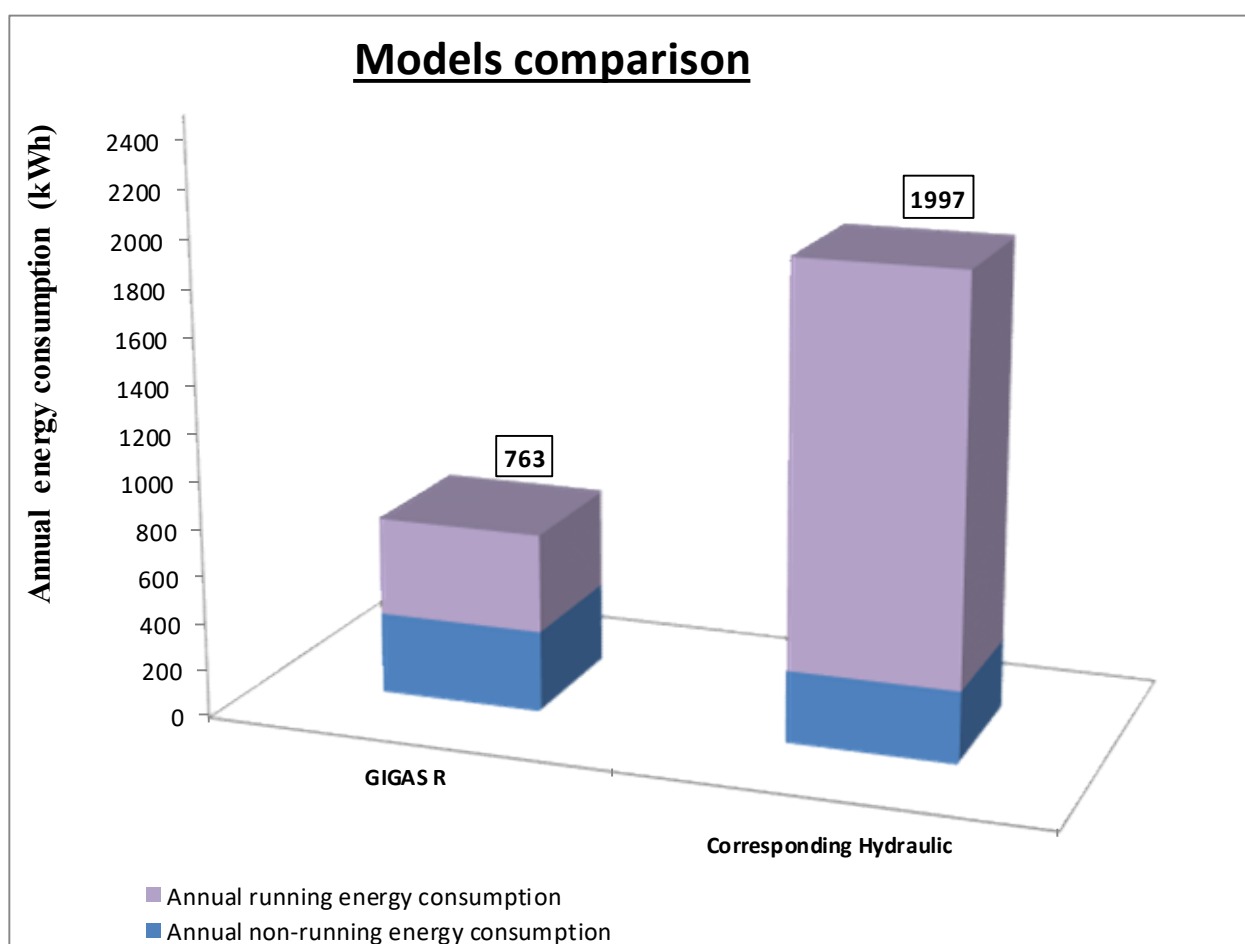
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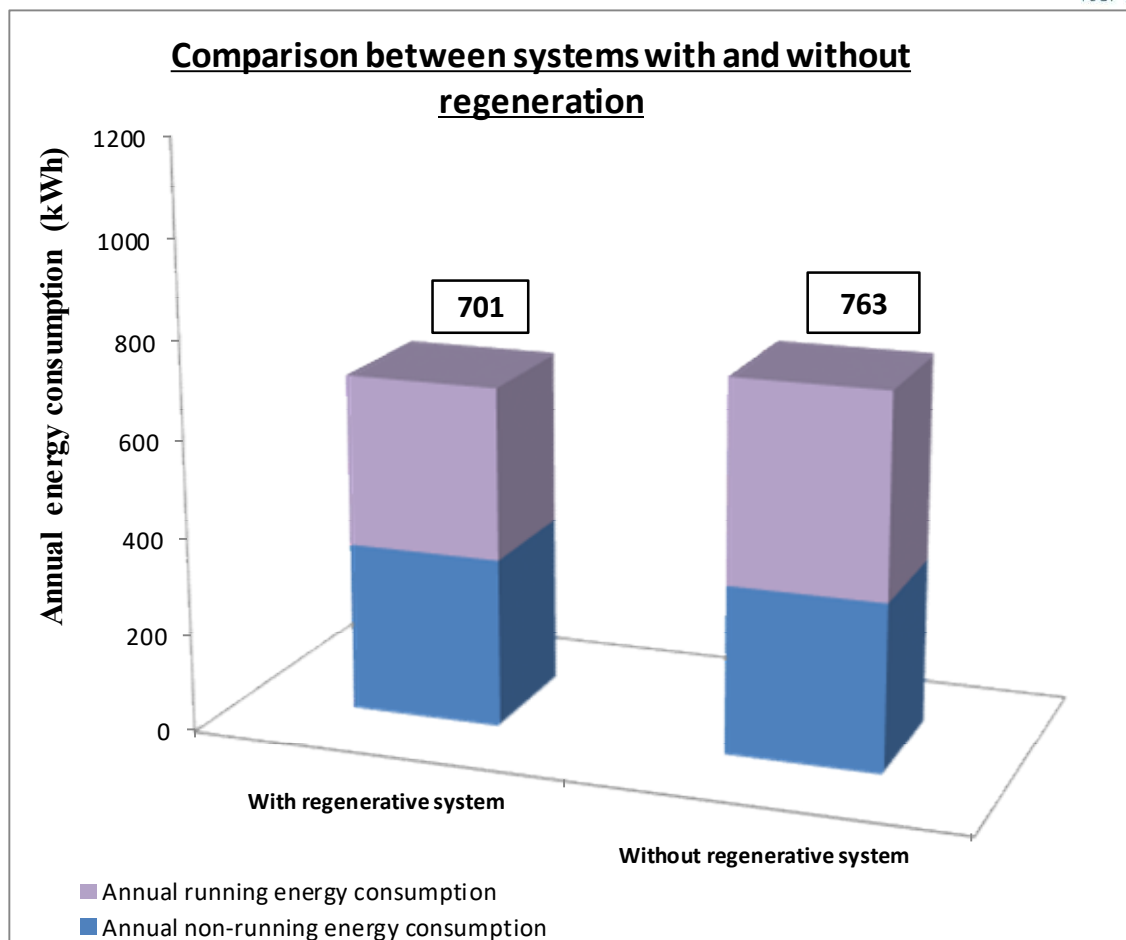
Type	Traction	Corresponding Hydraulic
	GIGAS R	
Rated load (kg)	1425	1425
Rated speed (m/s)	1	1
Travel (m)	18,375	18,375
Motor / Drive	Gearless / VVVF	Hydraulic power unit
Stops	8	8
Standby demand (W)	33	33
Travel demand in a reference trip (Wh)	58	236

The following table shows the energy efficiency class, for the cases of a traction and a corresponding hydraulic lift with the same basic characteristics, for a particular number of trips per day as well as the annual energy consumption calculated according to ISO 25745-2.

Type of drive	Traction	Hydraulic
Trips per day	100	100
Usage category	2	2
Energy class	A	C
Annual energy demand (kWh)	763	1997



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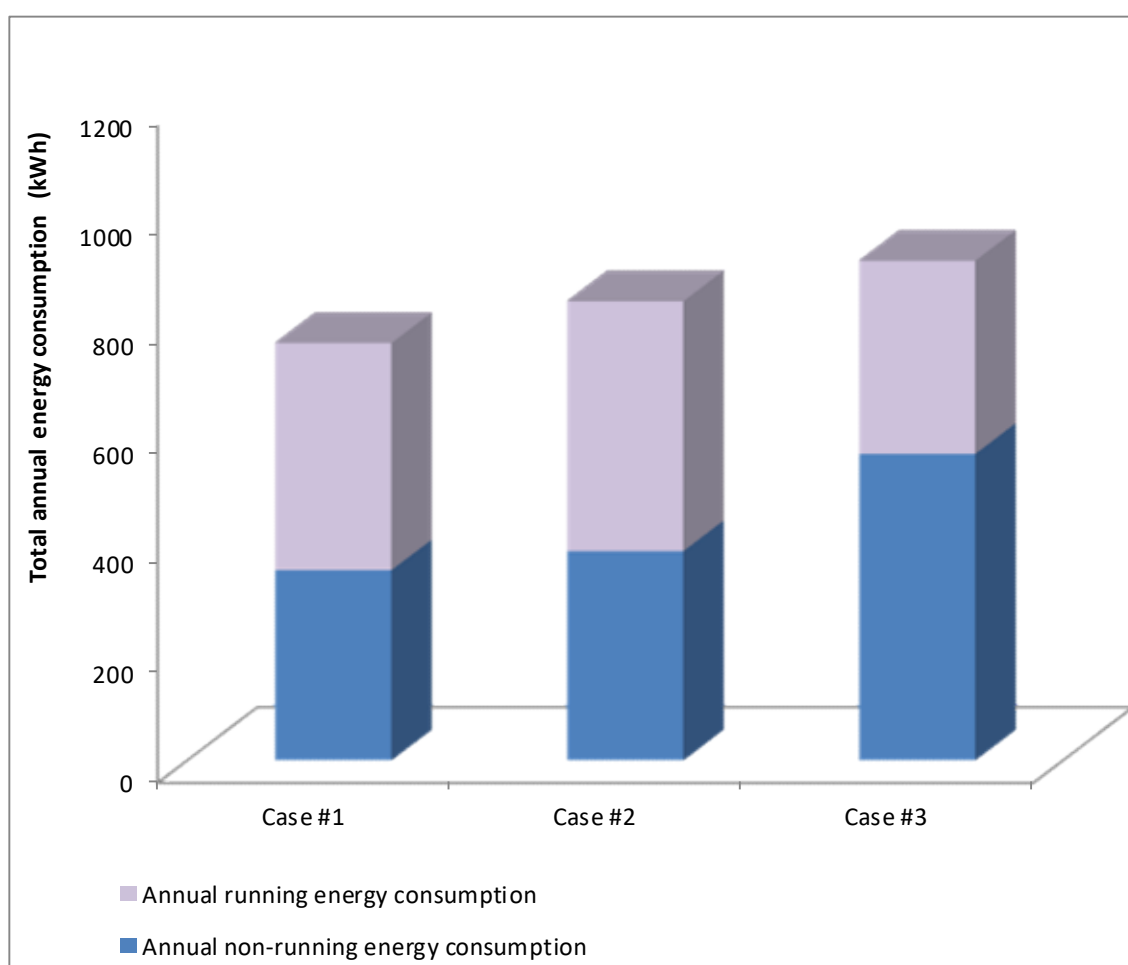
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For the reason mentioned above we consider the VVVF as mandatory and we have to select the best two from remaining options (Standby mode, LEDs, Regeneration system).

Assuming 100 trips per day it is calculated according to ISO 25745-2 that the annual time in travel in hours is: 141,98

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Annual running energy consumption (kWh)	415	456	353
Annual non-running energy consumption (kWh)	348	383	560
Total annual energy consumption (kWh)	763	839	913



Conclusion: From the results above is obvious that the best two remaining options are for Case #1.

The previous results prove that the second credit is achieved.

Hornsey Town Hall

BREEAM Refurbishment & Fit Out 2014

Post Construction Site Inspection Report

Prepared for Ardmore

Assessment Reference BREEAM-0081-6108

Revision 1

24th October 2024



WHITECODE
CONSULTING



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Rev No.:	Date:	Status/Comments:	Prepared by:	Position
1	24.10.24	Post Construction	Katy Venables	BREEAM Assessor

1.0 Introduction

This report has been produced by Whitecode Consulting Ltd who is licensed by BRE to carry out BREEAM Assessments. The Post Construction review aims to provide evidence obtained from a site inspection to ensure that commitments made during the design and construction process have been implemented in accordance with BREEAM criteria.

The site is registered under BREEAM Refurbishment and Fit Out 2014, covering Parts 1-4 and seeks to achieve a Good rating which requires a score of 45 or above.

The site inspection occurred on 24th October 2024 at 10.00am in the presence of Elliot Bacon, Senior Design Manager at Ardmore.

2.0 Site Description

The proposed development application was granted consent by the London Borough of Haringey in March 2018 (application reference: HGY/2017/2220). The approved planning application includes:

"Refurbishment and change of use of the Hornsey Town Hall from b1 use class and sui-generis to a mixed use scheme comprising a hotel (use class c1), food and beverage uses (use classes a3 and a4), community uses (use class d1, d2 and sui-generis) and co-working use (use class b1). Removal of east wing extension and erection of east wing roof extensions. The erection of a 7 storey building and part 4, part 5, part 6, part 7 storey building to the rear and associated car parking at basement level. Change of use of the ground floor of Broadway Annex to food and beverage use (use class a3 and a4) and change of use of the first and second floors to residential use. The erection of an extension to the rear of the Broadway Annex and erection of a residential mews block to the rear of the Broadway Annex. Comprising 146 residential units in total. Alterations and landscaping improvements to the town hall square and open spaces."

3.0 Site Inspection Findings

Energy

Ene 06 Energy Efficient Transportation Systems

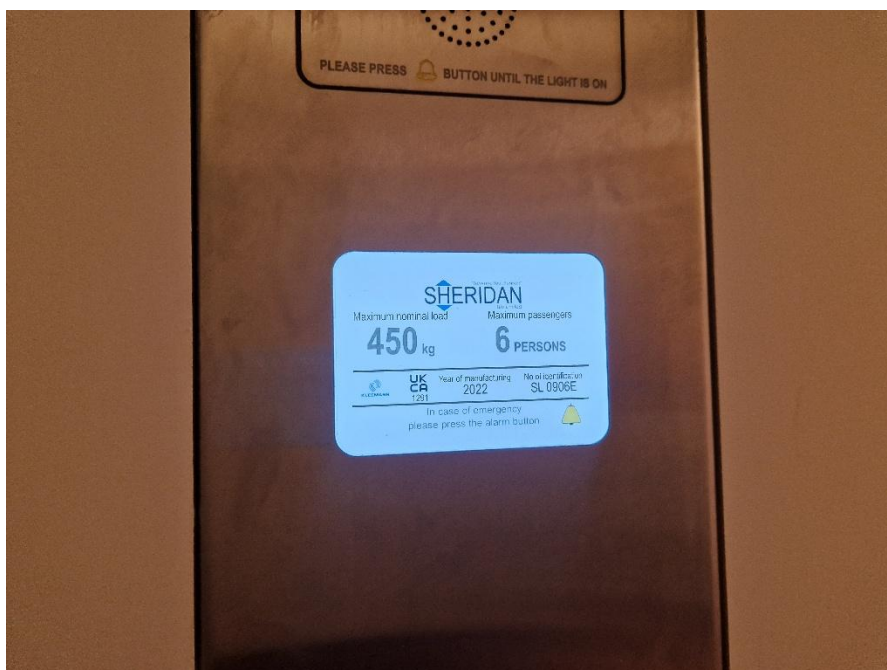
Design Specification

Design Stage information indicated Kleeman's lifts were proposed.

Visual Inspection

Kleeman lifts have been installed which is consistent with design stage proposals.











Water

Wat 01 Water Consumption

Design Specification

The Transport Statement by RPS confirmed that there is a nursery, primary school, post office, supermarket and leisure centre within 400m of the development.

Visual Inspection

Only wash hand basin taps and WC's have been installed in the Town Hall. These appear consistent with the datasheets provided by Ardmore. It is understood that flow rate testing will be carried out.





Wat 02 Water Metering

Design Specification

The internal water schematic showed a water meter with a pulsed output on the incoming mains to the building.

Visual Inspection

Aquamotion water meters have been installed in the building.





Wat 03 Water Leak Detection

Design Specification

The internal water schematic indicated a WG1 Aqualeak leak detection system was proposed.

Visual Inspection

A WG1 Aqualeak leak detection system has been installed.



Waste

Wst 03 Operational Waste

Design Specification

Drawings showed the location of a bin store for the Town Hall/Hotel and the types and volumes of the bins provided. The drawing also indicated the access routes for the waste collection company.

Visual Inspection

A Bin store has been provided for the Town Hall and Hotel which is consistent with the design intent. The bins themselves are labelled with the material that can be deposited in it (food, mixed recyclables, general waste) as well as the main door to the bin store having signage. A tap for washdown is also provided. Lights are controlled by PIR.



Signage provided on the door within the bin store.



Commercial bins include signage indicating what materials can be placed within them.



General waste bins have signage on them stating 'General Non-Hazardous Compactable Waste'.



PIR controls the lighting in the bin store.

Pollution

Pol 02 Nox Emissions

Design Specification

The plant room drawing indicated that a Rehema CHP and Hoval Ultragas gas boiler were proposed for the development.

Visual Inspection

Rehema CHP engine and a Hoval Ultragas gas boiler have been installed in the energy centre.



Rehema CHP engine.



Hoval Ultragas Boilers.

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