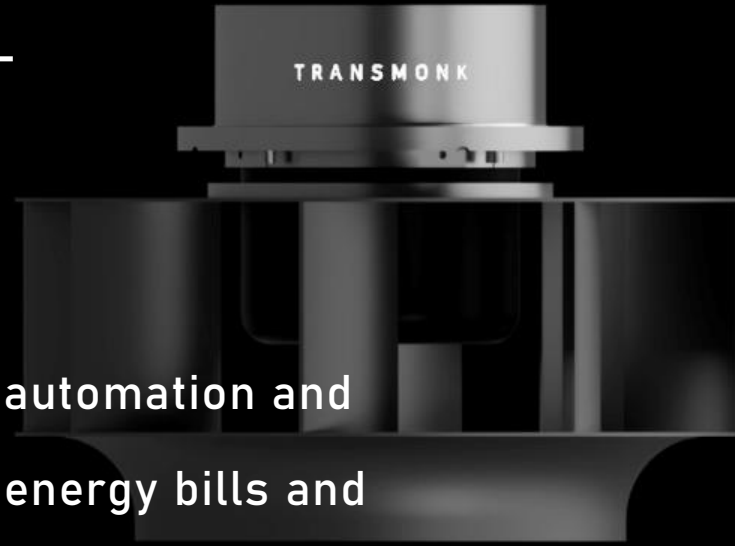


CASE STUDY: MUMBAI HOSPITAL



RETROFITTING AHU with innovative automation and EC technology motor help lowering energy bills and reduction in carbon foot-prints

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CASE STUDY: MUMBAI HOSPITAL

We have created this business case to validate our claim that Transmonk EC motor technology blended with customised automation based on necessity pays off by reducing energy bills and carbon footprints for hospital chains, hotels, commercial buildings, etc. It has not just helped the end user save energy bills by more than 30% but also removed the challenges faced in the maintenance and operation of the AHU.

India's economy is heading towards growth, which will lead to increasing per capita income and standards of living, coupled with rapid urbanization, rising demand for housing, and expanding commercial office space, all of which strain India's current energy resources. We are evidently seeing rising power demand YOY and a respective rise in power tariffs. This has become our necessity to implement and focus on energy-saving solutions. With our combined effort to optimize energy use by focusing on energy efficiency products and automation, we can contribute to meeting India's rising energy needs.

BEFORE RETROFIT

This hospital is one of the busy hospital in Mumbai having install around 42 AHU's we have taken 10 AHU's, all were having belt driven fan running on time based /Manual control

AHU No	CFM	SP (mmwg)	Existing Fan consumption
Old C.T/MRI	10047	50	4.95
Cath lab1	3800	75	3.33
Cath lab2	3800	75	3.33
EMERGENCY	5000	75	4.95
Basement UPS	5000	75	4.95
COMPANIAN/L3	5000	75	4.95
ICU3A	6000	75	3.33
ICU5/SICU(Super ICU)	9000	60	6.75
ICU6A/HDU	6000	75	3.33
CARDIAC PICU	6000	75	3.33



BEFORE RETROFIT

While visiting to site following issues has been highlighted

- Higher installed capacity , like 5.5 Kw motor was used to get 10,000 CFM
- Belt tightening issues
- AHU Maintenance issue due to no space left for cleaning
- Some AHU are running on VFD basis, and some are operated on time based , so maintenance team was dedicated to maintain the timing.
- No provision for BMS for futuristic expansion and centralized controlling
- Rising power tariffs

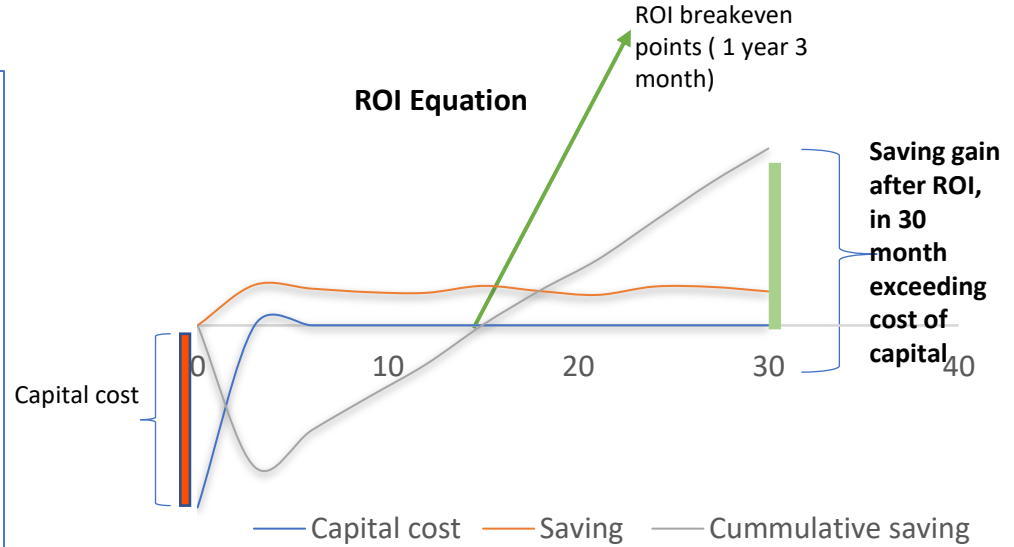
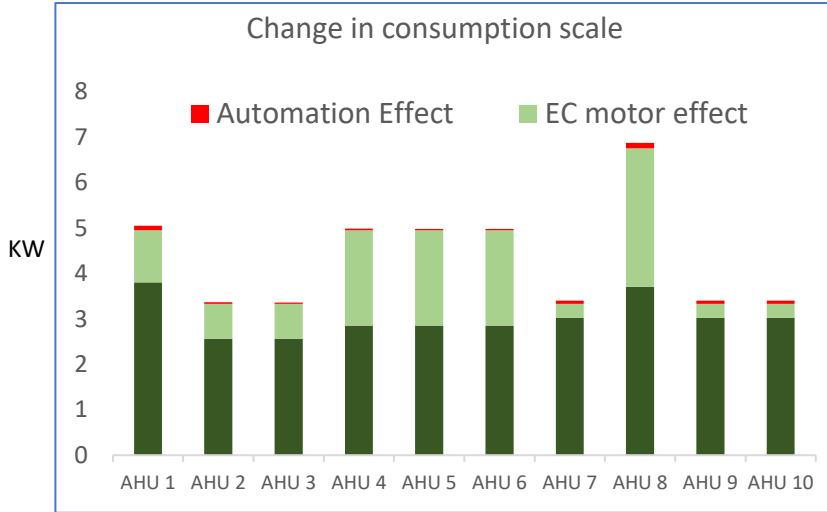


OUR SOLUTION WITH EC MOTOR

AHU Details	CFM	Static	Existing fan Consumption (KW)	Transmonk Fan selected (KW)	Saving in %	Yearly Saving (KWH) (24hrs operation)	Annual saving in Bill (rate 12.01 /unit)
Old C.T/MRI	10047	50	4.95	3.8	23.23%	10074	120989
Cath lab1	3800	75	3.33	2.56	23.12%	6745	81010
Cath lab2	3800	75	3.33	2.56	23.12%	6745	81010
EMERGENCY	5000	75	4.95	2.85	42.42%	18396	220936
Basement UPS	5000	75	4.95	2.85	42.42%	18396	220936
COMPANIAN/L3	5000	75	4.95	2.85	42.42%	18396	220936
ICU3A	6000	75	3.33	3.02	9.31%	2716	32614
ICU5/SICU(Super ICU)	9000	60	6.75	3.7	45.19%	26718	320883
ICU6A/HDU	6000	75	3.33	3.02	9.31%	2716	32614
CARDIAC PICU	6000	75	3.33	3.02	9.31%	2716	32614
Total			43.2	30.2			13,64,543

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SAVING EFFECT AND ROI



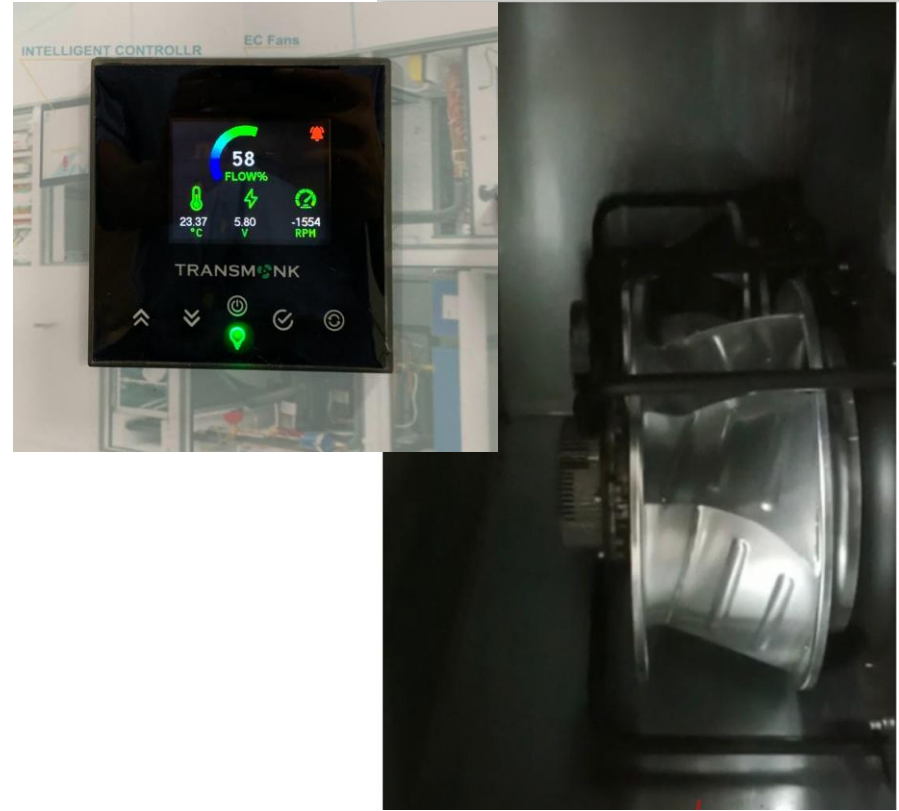
Annual saving : 30%+

Annual INR saving :13,64,543/- (only with 24% of installed capacity changed to EC fan)

Carbon foot print impact : 96574 Kg

OTHER BENEFITS

- No need of maintenance like pulley belt etc.
- With temperature-based automation human intervention has been avoided and hence avoiding the human error
- Since external rotor motor is used , the actual space required is less and creating better room for maintenance
- BMS module (RS485) has been added to controller for future centralized communication
- Increase in part load efficiency
- Increase in redundancy in case where 2 fan will be used ,as it can make out 50% capacity always even with failure of one fan.
- With Display actual RPM and capacity of fan can be determined
- Alarm in case of any communication failure



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LOOKING AHEAD

We are continuously working on energy-efficient motors and have provided valuable expertise to the hospital to maximize energy savings while minimizing upfront costs. The Transmonk team has worked out efficiency measures specific to this hospital chain, estimated savings for retrofits across India, and created an implementation plan. A phased implementation is already underway.

Moving forward with this retrofit and valuable solution, we have started working with a chain of hospitals and commercial buildings to share the best practices for energy savings and lowering the carbon footprint. We are also working with the ISHRA Chapter to share the outcome of our energy efficiency motor solution and exchange ideas.

In addition to saving energy with EC motors, we have also initiated planting a tree for each retrofit AHU project to contribute towards combating global warming and reducing carbon footprints for our country.




**THANKS FOR
YOU TIME !**



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