



**ENERGY**

**WATT IS SAVED  
IS EARNED**

**SUSHEEL KAUL**

CEO | Lifestyle Fabrics, Knits & Woven Fabrics



Ecological imbalance, sluggish pace of progress, increasing energy costs, and spiralling health issues - the implications of use, overuse, and abuse of energy are not just hindering the environment but also the business and the society.

At Arvind, we believe that energy is both an enabler and a bottleneck for business growth. While it largely remains as an inimitable resource, the demand-supply deficit may cause hiccups in the long-term business continuity.

**OVER THE YEARS, WE HAVE BEEN SUCCESSFUL IN IMPROVING OUR ENERGY PRODUCTIVITY BY INVESTING IN ENERGY EFFICIENT PROCESSES AND PRACTICES.** The aim is to entrench a 'continuous conservation culture'.

**60,400 kWh**

CUMULATIVE POWER SAVINGS IN BENGALURU THROUGH DAYLIGHT HARVESTING SYSTEM - FY 2014-15 AND FY 2015-16

**3 million kWh**

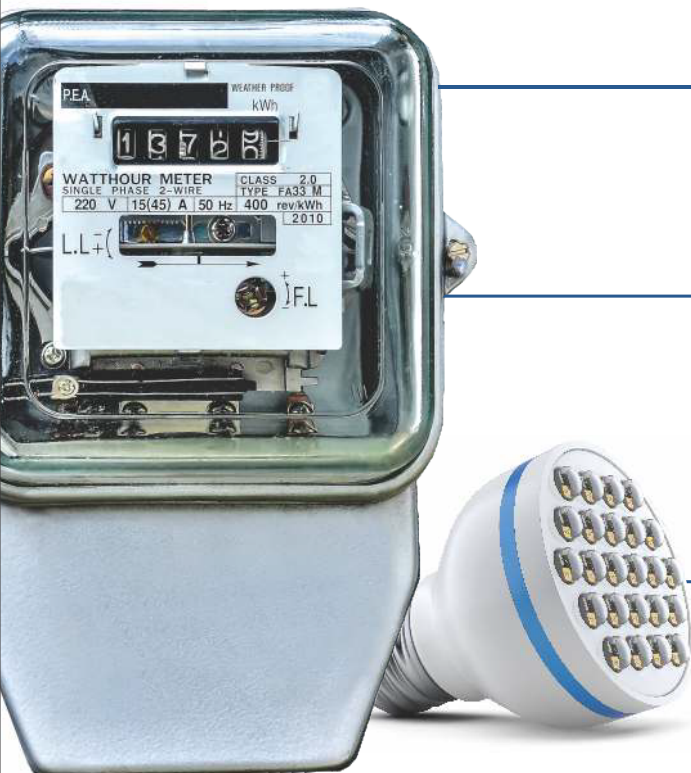
ANNUAL POWER SAVING THROUGH INTRODUCTION OF LED LAMPS AT SANTEJ

**ISO-50001:2011  
certification**

ARVIND IS THE FIRST INDIAN COMPANY TO GET THE CERTIFICATION IN THE 'COMPOSITE TEXTILE INDUSTRY-DENIM FABRIC' CATEGORY

**11.78%**

DECREASE IN GHG EMISSIONS (DIRECT+INDIRECT) AT NARODA IN FY 2015-16



We have put in practice a business-wide Energy Policy with a commitment to continually improve the energy performance of all units of Arvind. Objectives and targets are being set and reviewed to maximize the outcome of every unit of energy consumed. To ensure effective implementation of this policy, we have also instituted the Energy Conservation Cell which is overseen by the CEO.

#### OUR ENERGY STRATEGY

## 'LESS WATT PER METER'

This approach manifests into multiple tangible benefits.

**1 Improved Energy Security**

**2 Reduced Energy Costs**

**3 Enhanced Productivity**

**4 Lower Emissions**

In the reporting period, our operating unit at Santej achieved an encouraging reduction in specific electricity consumption.



As compared to FY 2013-14, the energy use per meter of production reduced by

**8%**  
at Santej.

**GOING AHEAD, WE WILL CONTINUE TO CONDUCT ENERGY AUDITS FOR ALL UNITS IN ORDER TO IDENTIFY AND IMPLEMENT FURTHER OPPORTUNITIES TO MINIMISE THE WASTEFUL USE OF POWER. WE ALSO AIM TO ADD RENEWABLE POWER TO OUR ENERGY MIX.**

**AT ARVIND, ENERGY PRODUCTIVITY FOCUSES ON ACHIEVING GREATER ECONOMIC OUTPUT FROM EACH INDIVIDUAL UNIT OF ENERGY. THIS HELPS ACHIEVE THE DUAL OBJECTIVE OF DE-LINKING ECONOMIC GROWTH FROM COMMENSURATE GROWTH IN OUR ENVIRONMENTAL FOOTPRINT.**

## CONSUMPTION

### ENERGY

At Arvind, we primarily depend on energy in three forms: coal, electricity and Compressed Natural Gas (CNG). Accordingly, we measure the energy consumption of our operations in two broad categories:

**Direct Energy**  
The energy we generate ourselves through combustion of fuels such as coal and CNG

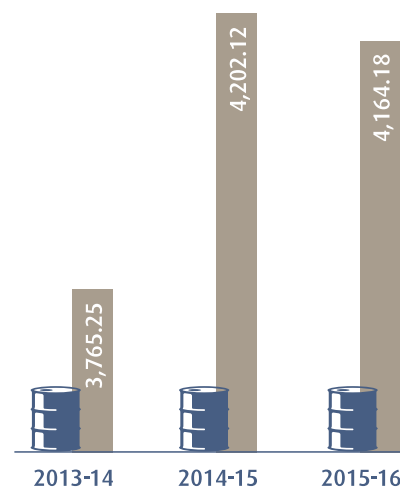
**Indirect Energy**  
The electricity we purchase from the grid

Greater disclosures lead to better measurement which in turn leads to better management. Starting this report, we have reinforced our energy accountability by including several smaller units in to our reporting boundary.

#### TOTAL DIRECT ENERGY CONSUMPTION

in TJ

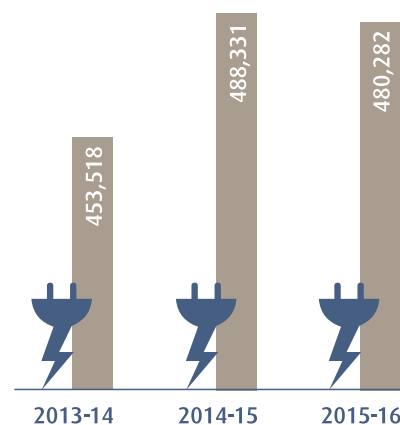
Units	FY 13-14	FY 14-15	FY 15-16
Woven & Knits (Santej)	1,926	2,580	2,566
Denim (Naroda)	1,496	1,300	1,227
Garments Export Division (Bengaluru)	103.6	78	101.32
Arvind Cotspin (Kolhapur)	1.31	1.12	0.86
Ankur Textiles (Ahmedabad)	238.34	243	269
<b>Total</b>	<b>3,765.25</b>	<b>4,202.12</b>	<b>4,164.18</b>



#### TOTAL INDIRECT ENERGY CONSUMPTION

in MWh

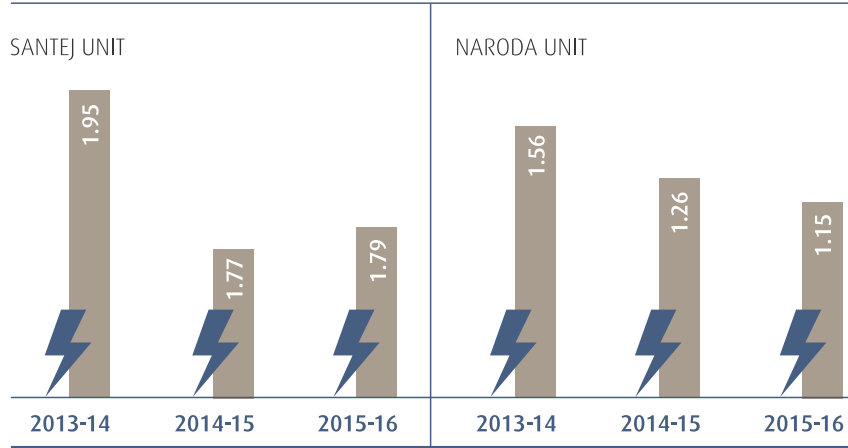
Units	FY 13-14	FY 14-15	FY 15-16
Woven & Knits (Santej)	227,184	244,157	262,913
Denim (Naroda)	125,060	137,797	114,057
Garments Export Division (Bengaluru)	5,864*	6,809	7,422
Arvind Intex (Ahmedabad)	40,430	39,979	38,314
Arvind Cotspin (Kolhapur)	31,764	35,736	34,932
Ankur Textiles (Ahmedabad)	23,216	23,853	22,644
<b>Total</b>	<b>453,518</b>	<b>488,331</b>	<b>480,282</b>



\*Excluding Electronic City data

## SPECIFIC ELECTRICITY CONSUMPTION

(in kWh/meter production)



Note: Two spinning units were closed at Naroda during FY 15-16; resulting in reduced specific energy consumption.

## EMISSIONS

The apparel industry accounts for 10% of global carbon emissions. As an integral part of this industry, we assume our responsibility towards restricting emissions by enhancing the energy efficiency of our processes as well as investing in low-carbon technologies.

The nature of our operations is such that we only produce carbon dioxide. Over the years, a focused drive to improve the efficiencies of our operations has resulted in managing emissions to a significant extent. A case in point is the downward trend in the specific GHG emissions witnessed by our Santej and Naroda units.

The apparel industry accounts for

**10%**  
OF GLOBAL CARBON  
EMISSIONS

### TOTAL GHG EMISSIONS (DIRECT & INDIRECT)

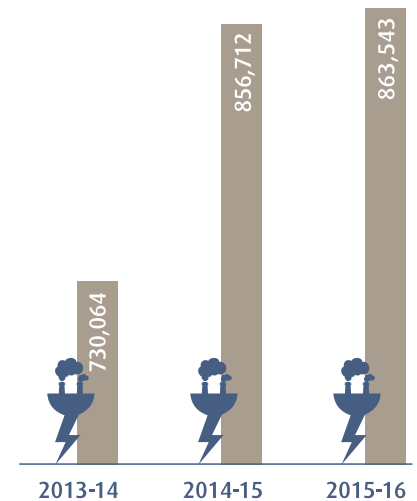
in TCO<sub>2</sub>

Units	FY 13-14	FY 14-15	FY 15-16
Direct	321,670	417,214	431,290
Indirect	408,394	439,498	432,253

### UNIT-WISE GHG EMISSIONS (DIRECT & INDIRECT)

in TCO<sub>2</sub>

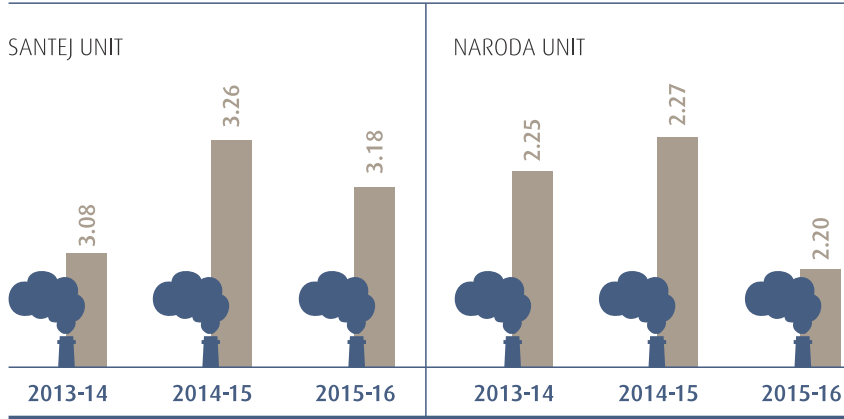
Units	FY 13-14	FY 14-15	FY 15-16
Woven & Knits (Santej)	383,272	448,284	468,083
Denim (Naroda)	230,342	247,122	218,011
Garments Export Division (Bengaluru)	7,602	48,121	65,046
Arvind Intex (Ahmedabad)*	36,387	35,981	34,483
Arvind Cotspin (Kolhapur)	28,589	32,245	31,503
Ankur Textiles (Ahmedabad)	43,872	44,959	46,416
<b>Total</b>	<b>730,064</b>	<b>856,712</b>	<b>863,543</b>



\*The data for Industrial textile unit includes only indirect emissions

## SPECIFIC GHG EMISSIONS

in kg CO<sub>2</sub>/meter production



**Downward trend**  
witnessed  
in the specific  
GHG emission  
in FY 2015-16.

## CONSERVATION



When it comes to energy conservation, every watt counts. Our teams, across units, remain on a vigil to continuously improve the processes and ferret out alternatives in order to use less energy per unit of produce. Our conservation efforts span both thermal and electrical energy.

Over and above enthusing our employees to continuously conserve, we also enhance the energy conservation awareness of our vendors through trainings, workshops and seminars. This empowers us to conserve beyond our sphere of operations and thereby contribute to the climate narrative on a larger scale.

Presented below is a glimpse of some of the key interventions:

**SANTEJ UNIT**

Action	Conservation
Replacement of 8,796 nos. 36-watt TFL with 18-watt LED lamps	<b>3 mn</b> kWh/Annum
Replacement of 1,096 nos. 250-watt, MV Lamp fittings with 120-watt LED	<b>1.4 mn</b> kWh/Annum
Installation of VFDs at various locations and processes	<b>VFD with Pressure Transducer</b> At three Auto Coner machines: <b>2.59 lac</b> kWh/Annum conserved
	<b>VFD without Pressure Transducer</b> At Pressure Dryer of Dyeing Machine: <b>0.5 mn</b> units/year conserved
Replacement of the existing pumps with new, energy-efficient pumps	<b>48.8</b> kWh/Day
Installation of additional pumps with better ratings at the shirting pump house	<b>7.65 lac</b> kWh/Annum
Introduction of dynamic rinsing process (VIVO & miDori®) in the yarn dyeing section	Power savings of <b>0.07</b> kWh/kg of fabric rinsed
	Steam savings of <b>0.5</b> kg/kg of fabric rinsed
Implemented Karl Mayer dyeing and sizing technology in the indigo dyeing machines such that two warp sheets are dyed & sized in one passage	Power savings of 30% <b>30%</b> and steam savings of <b>20%</b>

Action	Conservation
Elimination of two cooling tower pumps by installing a HR PHE in the Gas engine	<b>3.78 lac</b> kWh/Annum
Installation of two energy-efficient compressors in the loom shed	<b>8.1 mn</b> kWh/Annum
Replacement of existing pump sets with energy-efficient pump sets in the Central ETP	6 nos. 30 kW pump sets replaced by 2 nos. 55kW pump sets - resulting in energy savings of <b>2.51 lac</b> kWh/Annum
	6 nos. 110 kW pump sets replaced by 3 nos. 160 kW pump sets - resulting in energy savings of <b>1.4 mn</b> kWh/Annum
Installation of O <sub>2</sub> sensor and insulation improvement in steam boilers	Annual coal savings of <b>2,594</b> tonne
Installation of Economizer in 20 TPH boiler	<b>1,689</b> tons of coal saved equivalent to <b>9.83 lac</b> Kcal
Temperature optimisation of approximately 10°C at the Thermopack machine	Gas consumption reduced by <b>9.2%</b>



**SANTEJ UNIT RECEIVED TOP HONOURS AT THE NATIONAL ENERGY CONSERVATION AWARD FOR CONSERVATION EXCELLENCE IN THE TEXTILE SECTOR - SECOND YEAR IN A ROW.**



## NARODA UNIT

### Action

### Conservation

Switched to LED streetlights  
in place of HPMV lights

**200**  
kWh/Day

Introduced self-driven, energy-efficient turbo  
ventilation exhaust fans instead of electrically  
operated options

**1,080**  
kWh/Day

Installed a Variable Frequency Drive (VFD) in  
cooling tower motor and energy-efficient pump  
for water supply

**450**  
kWh/Day

Introduced VFD for microtech boiler

**600**  
kWh/Day

Tube lights replaced by energy efficient LED lights

**860**  
kWh/Day

Introduction of new humidification plants with  
VFD air washer pump

**1,200**  
kWh/Day

Optimum utilization of air compressors and  
installation of zero air loss trap/auto drain  
valves to prevent air drain

**552**  
kWh/Day

Replaced DC with AC in finishing machines to  
reduce energy consumption

**360**  
kWh/Day

Reduced coal consumption in 2 FBC boiler by  
increasing efficiency

**2.5**  
MT coal/Day

Installed transparent roof sheet at the Denim Plant

**68,086**  
kWh/Year



**OUR  
INTERVENTIONS  
TO ENHANCE  
BOILER  
EFFICIENCY  
EARNED US  
RECOGNITIONS  
AT STEAMTECH  
2016**



## BENGALURU UNIT

### Action

### Conservation

Replacing Fluorescent tube lights and metal halide lamps with LED dome light

**171**  
kWh/Day

Replacing the mild steel impeller with FRP Impeller in three spray booth blower motor fans.

**~35**  
Units/Day  
(for three fans combined)

Migration from electrical energy to steam energy in 3D IR crinkling by replacing IR Lamps with steam line tubes

**285**  
kWh/Day

Efficiency improvement of boiler by installing Air Pre Heater (APH) to pre-heat the air to be supplied to the boiler.

**35**  
Units/Day

## INITIATIVES

### TURNING INCINERATORS INTO HEAT HARNESSERS - SANTEJ UNIT

Heat recovery is an established approach to harness the power of steam, a key energy source in textile operations. Incinerators are great tools not just to manage waste, but also to generate thermal energy. Building on this approach, we installed heat exchangers in steam boiler nearby the incineration system for generating steam. With a capacity worth 2,000 litre/hour at a 70°C rise temperature, the exchangers will further add to the heat recovery strength of Arvind. Total capital cost of this intervention is INR 12 Lac, and the energy returned on the investment is 400 kg of coal saved per day.

### HARNESSING THE POWER OF NATURE SANTEJ, NARODA & BENGALURU UNITS

Mother nature offers resources aplenty. The trick is to leverage them effectively. At Arvind, we seek to harness the power of sun, in the most natural and productive manner. Some of our units, wherever feasible, have incorporated skylights to let the nature light in and brighten the spaces. This has effectively reduced the need for artificial lighting resulting in energy savings of 570 kWh per day.

In order to minimise the usage of artificial lights in the washing area of our Bengaluru unit, we installed a daylight harvesting system comprising light tubes and skylights. This has resulted in around 90% power saving. Between April 2014 and April 2016, the unit reported power savings of more than 60,400 kWh.

## Skylights

have effectively reduced the need for artificial lighting resulting in energy savings of

**570 kWh**  
per day.

At Bengaluru, daylight harvesting system resulted in

**90%**  
power saving

