

**RSWM Limited**  
(A Unit of LNJ Bhilwara Group)  
Mayur Nagar, Village Lodha, Distt Banswara (Rajasthan)

**Unit Profile**

RSWM Limited (formerly known as Rajasthan Spinning & Weaving Mills Limited), exports a complete range of yarn to over 66 countries across Europe, South Africa, Australia, Korea, Belgium, Singapore, Italy, Egypt and the Gulf countries. With nearly 60% of units production exported, the Company has a significant presence in the world of textiles. The unit has also made expansions in the year 2004-05 for 26,496 spindles & in the year 2006-07, an Open plant with 1680 rotors.

RSWM Limited has also been recognised as a Golden Trading House by the Government of India, having won the prestigious SRTEPC Export Award for several consecutive years. This makes the Company truly global, yet truly Indian.

Following are the following Certifications & awards have been won by RSWM Limited

- License for processing 100% organic (GOTS) & organic Exchange yarns from Control union certification.
- RSWM Limited has also awarded commendation certificate for the **Rajiv Gandhi National Quality Award for year 2006-07** in large scale textile manufacturing industry.
- Quality Management system – ISO 9001: 2000 Certificate
- Environment Management System – ISO -14001: 2004 certificate
- SRTEPC Export Award for several consecutive years.
- Recognised as Golden Trading House.
- **“Sarvottam Vriksh Vardhak Purashkar”** to the unit in the year 1998 for highest plantation.
- Oeko Tex Standard 100 Award
- State award for export excellence from state government
- Achieved 3<sup>rd</sup> rank at nation wide competition organized by SITRA for implementing best industrial practices in textile industry.

The strength of the unit is new product development out of any kind of specialty functional & technical fibres & has a highly specialised Yarn Development Centre and a Design & Development Studio.



**Overview of RSWM Limited, Lodha, Banswara**

### **LNJ Group History:**

The journey of the LNJ Group begins in 1961 when the group founder, LNJhunjunwala established a textile Mill in Bhilwara Rajasthan.

Today that single textile mill has expanded in to several textile mills; the group has diversified strategically & stands proud as a multi product & service conglomerate. Industry pioneers in many cases, we have also established ourselves one of the top 50 Indian business groups.

In power generation Group has achieved few mile stones as under:

- **Hydro Power Generation**
  1. Bhilwara Energy Limited.
    - a. Upper Baori Doab Canal – 3
    - b. Nyamujung Chhu
  2. Malana Power Company Limited
  3. AD Hydro Power Limited
  
- **Captive Power**
  1. Thermal
  2. Hydro
  3. Waste Heat Recovery
  4. Wind Energy

- **Power Consultancy**

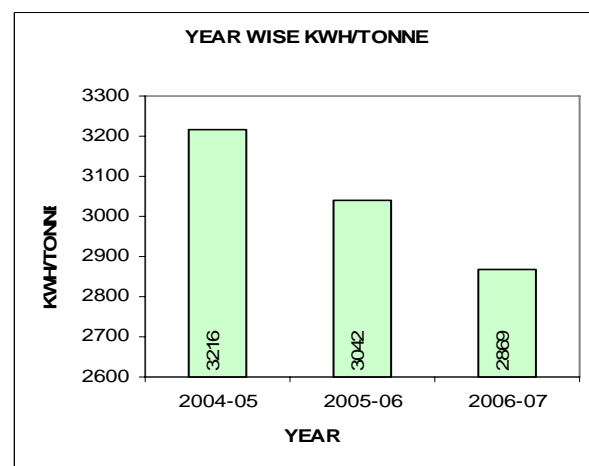
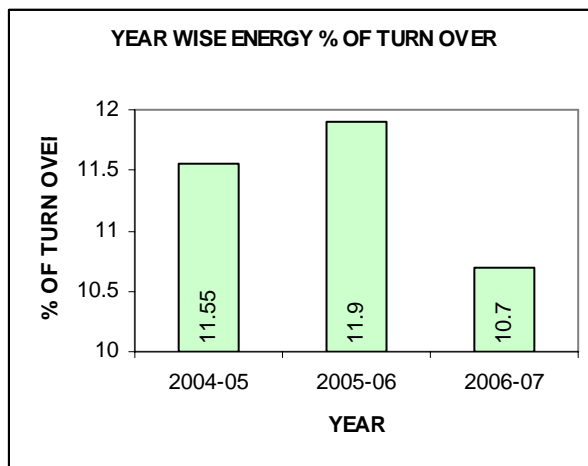
1. Indo Canadian Consultancy Services Limited

**Energy consumption:**

We always adopt the new technology, which are energy efficient & do the modification also wherever & whenever required in the old machine to comply with our internal norms. There are lot of efforts have been made to reduce the power consumption. With the implementation of various energy conservation efforts, we have been able to reduce the specific energy consumption.

The specific power consumption of last three years is mentioned below. This indicates the continual reduction in energy consumption level over the last two years which is the result of sustainable efforts to conserve energy & new ideas to increase the efficiency of equipments.

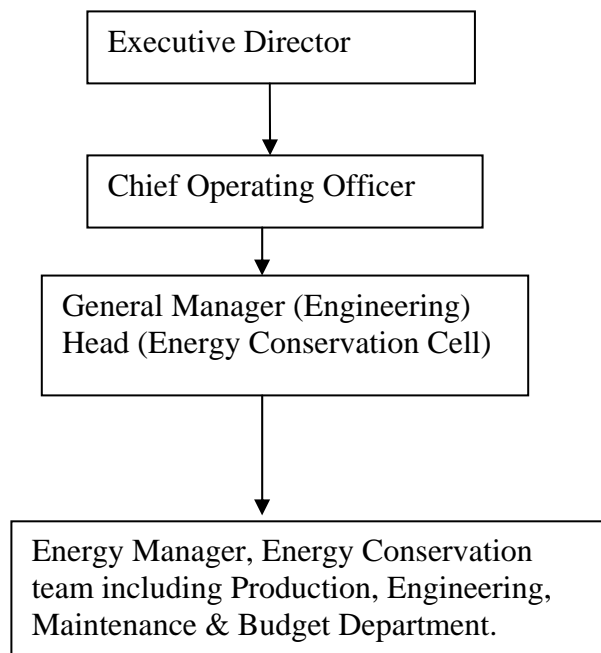
Description	Unit	2004-05	2005- 06	2006-07
Electrical energy Consumption	Lacs KWH	660.64	781.05	849.76
Total Production of yarn	M Tonne	20543	25676	29615
Power	KWH/ Ton	3215.87	3041.96	2869.37
Turnover (Sales)	Rs In lacs	26411.80	31317.07	36776.00
Energy cost	Rs. In lacs	3051.01	3728.73	3935.41
Energy cost as %age of turnover	In %	11.55%	11.90%	10.70%
Cost of Power per unit	Rs.	4.62	4.77	4.63



## Energy Conservation Commitment, Policy and Set up

A team “ENERGY CONSERVATION CELL” is specially working on energy saving projects headed by General Manager (Engineering). The members of energy conservation cell are from engineering, production, and maintenance and budget department. Weekly meetings are being conducted. Discussions & last meetings points are reviewed. Last year we had saved more than **5000 units/day** & this year target is **7000 units/day**. We regularly give training to our workers for awareness towards energy saving. At group level, Engineers meet being organized in which every unit explores about the energy saved in their unit. When we save some units through specialized project we immediately share with other units. On line power monitoring system has been installed which gives data mill wise & further sub feeders. We also send our engineers to other units to explore further possibilities. The unit has also undergone for the energy audit through BITRA in the year 2006. The unit has been able to reduce specific power consumption more than 12% in the year 2006-07 as compared to 2004-05.

### Energy conservation Cell Structure



Main Activities of Energy Conservation Cell are:

- Brain Storming
- Identification of area
- Trials & implementation
- Analyses & proposal for investment
- Implementation
- Monitoring
- Kaizens

## Energy Conservation policy:

As such the unit doesn't have any separate energy management policy but has been covered under ISO-14001 as under.



**ENVIRONMENTAL POLICY**

We, at RSWM Limited, engaged in the production of textiles, commit ourselves to :

- ▶ Preventing pollution through efficient use of resources and operational control.
- ▶ Making continual improvements in our environmental performance by controlling various releases.
- ▶ Complying all applicable environmental legislation & regulations.

**RSWM Limited**  
an LNJ Bhilwara Group Company

  
(RIJU JHUNJHUNWALA)  
Joint Managing Director  
RSWM Limited

ENVIRONMENTAL OBJECTIVES covered are as under

1. To reduce overall consumption of water in the mill by 10% in a period of 2 years.
2. To monitor & control the noise levels in carding to Autoconer & D.G. Sets operations on regular basis.
3. To control the release of fly to air from all operations of the production activities on regular basis.
4. To reduce overall consumption of electric power in the entire mill operation by 5% in a period of two years.
5. To increase overall awareness among employees on environmental protection & prevention of pollution.

## Energy conservation Achievements:

During the period 2004 to 2007, the unit implement various energy conservation measures through in house generated ideas, technological up gradation & various brainstorming sessions. The result for all the activities & efforts is clearly visible in the table below which depicts the continuous reduction in specific power consumption.

**Table below is showing the year wise specific power per Tonne of production.**

Year	Product	Production	KWH/Tonne	%age reduction over 2004-05
2004-05	Cotton & blended yarns	20543	3215.87	-
2005-06	Cotton & blended yarns	25676	3041.96	6.87%
2006-07	Cotton & blended yarns	29615	2869.37	12.22%

## Major energy conservation projects undertaken during 2006-07

1. Installation of Natural draft jet type cooling tower in place of induced draft cooling tower.



Natural draft jet type cooling tower has been installed in place of induced draft cooling tower for Centac Air Compressor to save power consumed by cooling fan i.e 5.5.KW for nine months remain stop.

Investment : Rs. 2.5 lacs  
Units saved/annum : 0.52 lacs  
Savings : Rs. 2.23 lacs

2. Installation of separate 100 CFM air compressor with dryer to run higher pressure machines.



A 100 CFM compressor has been arranged with dryer to run high pressure Ring Frame machines in mill-8. This has resulted in to bring down the system pressure 7.8 bars to 7.0 bars.

Investment	: Rs. 0.8 lacs
Units saved/ annum	: 0.37 lacs
Savings	: Rs. 5.82 lacs

3. Installation of FRP fans in place of conventional Aluminium fans in Humidification plant



13 nos. energy efficient FRP fans have been replaced in place of conventional humidification fans with maintaining same quantum of air. The static pressure of fans & air velocity at the diffusers in department was also checked & found benefits.

Investment	: Rs. 5.20 lacs
Units saved/ annum	: 2.92 lacs
Savings	: Rs. 12.41 lacs

#### 4. Installation of energy efficient SITRA excel fans in Ring Frame



25 nos. energy efficient SITRA – Kentex excel fans in place of conventional aluminum fans in suction of Ring Frame machines.

Investment : Rs. 3.50 lacs  
Units saved/ annum : 1.46 lacs  
Savings : Rs. 6.20 lacs

#### 5. Installed in house steam heater for FO heating.



In house designed steam heater has been installed in place of electrical heaters to heat furnace oil at fuel oil separator to save power. (Steam cost is negligible as we have waste heat recovery boiler at WARTSILA DG Sets.

Investment : Rs. 0.50 lacs  
Units saved/ annum : 1.58 lacs  
Savings : Rs. 6.71 lacs

## 6. Shifting of 2500 KVA 11/0.415 KV transformer to reduce line losses.



Mill 6 - 2500 KVA 11 / 0.415 KV transformer has been shifted near LT panels & reduced the line losses because of long LT cables & intermediate panels. The voltage drop has been reduced by 6.45 Volt & current is 1800 AMP.

Investment	: Rs. 1.75 lacs
Units saved/ annum	: 2.74 lacs
Savings	: Rs. 6.71 lacs

## 7. Installation of inverter with auto sped regulation in Humidification plant.



In humidification plant, one no inverter has been installed on the washer pump motor with auto speed regulation according to requirement of humidity. Earlier it as used to run at 100% speed. The average speed of the motor has been reduced to 80% where as max speed has been restricted to 90%.

Investment	: Rs. 0.50 lacs
Units saved/ annum	: 0.20 lacs
Savings	: Rs. 0.85 lacs

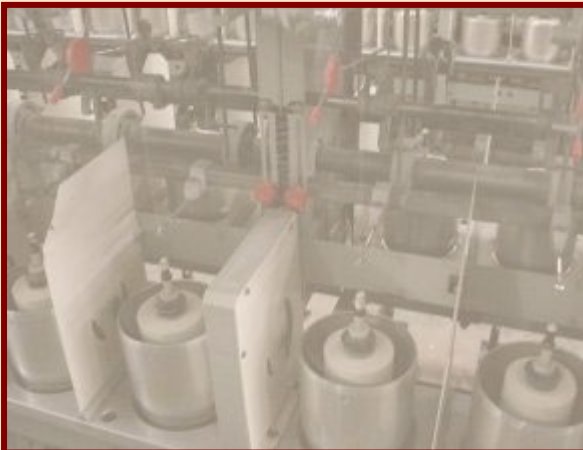
## 8. Installation of energy efficient Opti Power motor in Ring Frame in place of conventional motor



In Ring Frame – one no. make LEDL (A Unit of LMW) energy efficient opti power motor has been installed to save energy. The efficiency of the motor is 94.6% against original motor of 92%. This has also resulted in to improvement of power factor.

Investment : Rs. 0.80 lacs  
Units saved/ annum : 0.22 lacs  
Savings : Rs. 0.93 lacs

## 9. Optimisation of balloon setting in TFO machines.



This was observed that the TFO power consumes less power at lower balloon settings. Balloon size was optimized by taking various studies with respect to different yarn count patterns.

Investment : Nil  
Units saved/ annum : 2.50 lacs  
Savings : Rs. 10.62 lacs

#### 10. Optimisation of plant lighting in production departments.



In production area, the illumination level was optimized as decided by the production department. More than 100 nos. tube lights in non essential area has been kept off by installing separate switch.

Investment : Nil  
Units saved/ annum : 0.36 lacs  
Savings : Rs. 1.53 lacs

#### 11. All the yarn go-downs & plant attic has been equipped with translucent sheets.



All the yarn go-downs & plant attic above false ceiling has been equipped with translucent sheets to utilize maximum use of natural resource like sun light & hence saving power.

Investment : NIL  
Units saved/ annum : 0.01 lacs  
Savings : Rs 0.04 lacs

12. Humidification plant rotary air filter auto ON & OFF switching as per differential pressure.



At mill-8, in humidification plant 6nos. rotary air filter auto ON & OFF switching as per differential pressure.

Investment	: 1.25 lacs
Units saved/ annum	: 1.27 lacs
Savings	: 5.43 lacs

13. Conversion of belt driven fan to direct couple fan in humidification plant.



At mill-1&2, in humidification plant 9nos. belt driven to direct driven. Motor rating reduced from M-18.5 KW to 11KW by maintaining the same CFM in plant.

Investment	: 2.50 lacs
Units saved/ annum	: 1.54 lacs
Savings	: 6.55 lacs

**Savings achieved in year 2006-07**

<b>S No.</b>	<b>Description</b>	<b>Savings in Lacs KWH</b>	<b>Savings (Rs. In lacs)</b>	<b>Investment (Rs. In lacs)</b>
1	Compressed air network (cleaning gun, lock & key arrangement, bypass arrangement) & attending air leakages	3.10	13.17	0.25
2	Jet cooling tower for CENTAC compressor.	0.525	2.23	2.5
3	Lighting (40watt by 20watt, master switch, time delay in exhaust fan)	0.77	3.27	0.01
4	Installation of separate 100 CFM air compressor with dryer to run higher pressure m/cs	1.37	5.82	0.80
5	Aluminum fan replaced by FRP fans at Mill no. 8	2.92	12.41	5.2
6	Replaced old FRP fan by highly efficient FRP fan more 10% power saving at Mill-1	0.06	0.25	0.40
7	25 nos. energy efficient Sitra Excel suction Fan on R/F machines	1.46	6.2	3.5
8	Installed steam heater at Fuel Oil Separator inlet (Wartsila site)	1.58	6.71	0.50
9	Reduce loading unloading frequency by changing pulley size & also reduce load of ATLAS Comp GA-22	0.22	0.93	0.05
10	Reduce transmission losses in M-6	2.74	6.71	1.75
11	Inverter installation of pumps in Mill – 8 H plant	0.20	0.85	0.50
12	Energy efficient Opti speed motor for Ring Frame	0.22	0.93	0.80
13	Auto switching on & off of rotary air filter in Humidification plant with differential pressure switch	1.00	4.25	0.25
14	Balloon control in TFO	2.5	10.62	Nil
15	Capacitors with low current were replaced by new capacitors & getting rebate of PF	-	30.00	6.00

S No.	Description	Savings in Lacs KWH	Savings (Rs. In lacs)	Investment (Rs. In lacs)
16	Overhauling of Cleaning air compressors for increasing the compressor efficiency	0.66	2.80	0.60
17	Optimization in lighting in the production hall.	0.36	1.53	Nil
18	Installation of translucent sheets in Yarn go-downs.	0.01	0.04	0.25
19	Conversion of Belt driven fans in to direct driven fans in Humidification plant	1.50	6.37	2.50
20	*Specific Fuel Consumption has been improved at Wartsila power Plant		35.51	FOC
	<b>Total</b>	<b>21.20</b>	<b>150.62</b>	<b>29.36</b>

\* Pay Back period of the investment for the Energy Conservation (Except SFC) = 4.15 months

#### Energy conservation plans & targets for year 2007-8

S No.	Description	Savings in Lacs KWH	Savings (Rs. In lacs)	Investment (Rs. In lacs)
1	Transformer shifting in Mill 4 & 5, reduction in Distribution losses.	4.38	18.62	10.00
2	Transformer replacement of Mill -7	2.74	11.63	1.00
3	Inverter for pumps 6 nos with auto control	1.20	5.10	3.00
4	FRP fans (10 nos.) in Humidification plant	2.25	9.55	4.00
5	Opti-speed motors 34 KW (15 motors out of 42nos) in mill 4-5	5.50	23.38	20.00
6	Rewound/Overloaded motors are replaced by opti power motors. (15 nos.)	1.76	7.48	6.00
7	Indication lamps LED type.	0.06	0.26	0.10
8	Speed optimizations at various stages at Ring Frame	3.50	14.89	Nil

S No.	Description	Savings in Lacs KWH	Savings (Rs. In lacs)	Investment (Rs. In lacs)
9	Stopping of coiler in comber in Mill -6	0.01	0.05	Nil
10	Switching off two blender m/cs by maintaining same production with third blender	0.18	0.78	Nil
11	By passing of Unimix in case of running of polyester in Mill 4-5	0.29	1.24	0.25
13	Installation of LED type lights in street lighting.	0.18	0.78	1.00
14	Replacement of energy efficient spindles in 9nos TFO machines.	3.06	13.00	26.00
	<b>Total</b>	<b>25.65</b>	<b>109.0</b>	<b>71.35</b>

### Energy conservation steps which are under trial

- Optimisation of machine speed with improvement in productivity and quality parameters.
- LED based lights.
- Atomization of humidification plant in ring frame.
- SKF make energy efficient bearings.
- Water conservation.

### Environment & safety

To protect human resources and machines from fire, a very effective and demonstrated fire hydrant system is in operation in the plant that covers the whole plant. For conservation and environment protection, our organization has been very thoughtful since beginning. Power is the main operating expenses in our yarn manufacturing process and thus saving in both these areas have been our sole targets for which the management has taken numerous steps in collaboration with various research bodies such as SITRA etc. As far as energy conservation goes various technological modifications in machines such as conversion of drives, replacement of old motors/pumps/bulbs/fans etc with energy efficient substitutes have been done in addition to creating awareness amongst all.

Banswara Unit is having a very beautiful Orchard with countless trees and sprawling lawns also housing a beautiful lake. Our orchard and gardens has become a picnic spot for the local residents of this area. Rajasthan State Government has also awarded **“Sarvottam Vriksh Vardhak Purashkar”** to the unit in the year 1998 for highest plantation.



The company gives prime importance to the safety and health of its employees through safe working conditions and has taken ambitious task of keeping the plants free from work accidents. Safety Committee comprising of equal number of Management and Workers representatives periodically review the safety requirements and accident prevention measures. Likewise in the area of Pollution control, all the campus effluent is treated by well-managed effluent treatment plant and total water obtained from this is used for plantation in the campus.

As of now, we are recommended by the BIS for ISO-14001:2004 certificate in all the units of RSWM.

We have a beautiful campus having more than 30% area for gardening work. In totality around 40000 trees planted in our lush green campus. The pop up geared driven type sprinkler system used for lawn irrigation. We have latest sewage treatment plant and the treated water reuse for gardening & for irrigation. We do not use chemical fertilizer / pesticides.

### **Environmental friendliness of products**

We are producing 100% cotton & variety of blended yarns. In the heading of “NEW PRODUCT DEVELOPMENT” department a young dynamic team is continuously working on the new products, which are environment friendly, made by natural fibre & comfort for the human being. Few of the product details are as under:

#### **BAMBOO BLENDS**

Bamboo fibre manufactured from the pulp of bamboo. It is characterized by good hygroscopicity, excellent permeability, soft feel, & easiness to straighten & dye. It is natural anti-bacterial, green & biodegradable.

#### **CHARCOAL**

The development of charcoal is a revolution in the textile industry. Fabric made by Charcoal yarn having special features of anti odour, anti bacterial, dry touch radiating far infrared rays & blocking out electromagnetic radiation

#### **SOYABEEN BLENDS**

This is the only renewable botanic protein fibre. Feeling like ‘skin on skin’ because of its softness, comfort & smoothness. It gives feeling of cashmere like handle, luxuriant appearance, and natural bacterial resistance, nursing the skin.

#### **ENERGY YARNS**

The garment manufactured by this yarn are suitable to control blood pressure & retain the body temperature constant by means of super imposition & resonance of bio waves, which is normally affected by outside temperature. The main concept to make this garment suitable for human body is to attract the far infrared rays from visible light, which is a part of invisible region of Sunlight. These rays penetrate the human body up to the energy generating cells & activate to produce more energy. This energy is reflected back to the body by the garment & creates resonance with the waves already working with the cell & superimposes on to them & thus maintains the body temperature.

#### **Effluent & pollution hazards**

We are not releasing any effluent & pollution hazards to the environment. We submit the consent for Air & Water to Rajasthan State Pollution Control Board on yearly basis. As per norms, we periodically test our ambient air at different locations, STP discharge water, Drinking water, Chimney emissions, which always come within the set norms.

#### **Noise**

To monitor & control the noise is one of the objectives of our EMS activity. We fortnightly monitor the noise level at defined locations. We make a trend of these readings & compare with our standard. Accordingly for the human safety we had provided earmuffs & earplugs for the area where the noise is higher than the standards. The meter that we are using is self calibrated type

The building of our Wartsila DG Captive Power Plant was fabricated with imported insulated wall panels in 1997 to avoid sound pollution.