

Bangladesh Solar Home System Program – lessons learned

- Webinar seminar organized by jointly by the United Nations Foundation's Energy Access Practitioner Network and the Clean Energy Solutions Center

The implementation of the solar home system in Bangladesh & performance of tubular batteries in harsh environment

Presented by: Sayeed Hassan – Rahimafrooz

2 October 2013

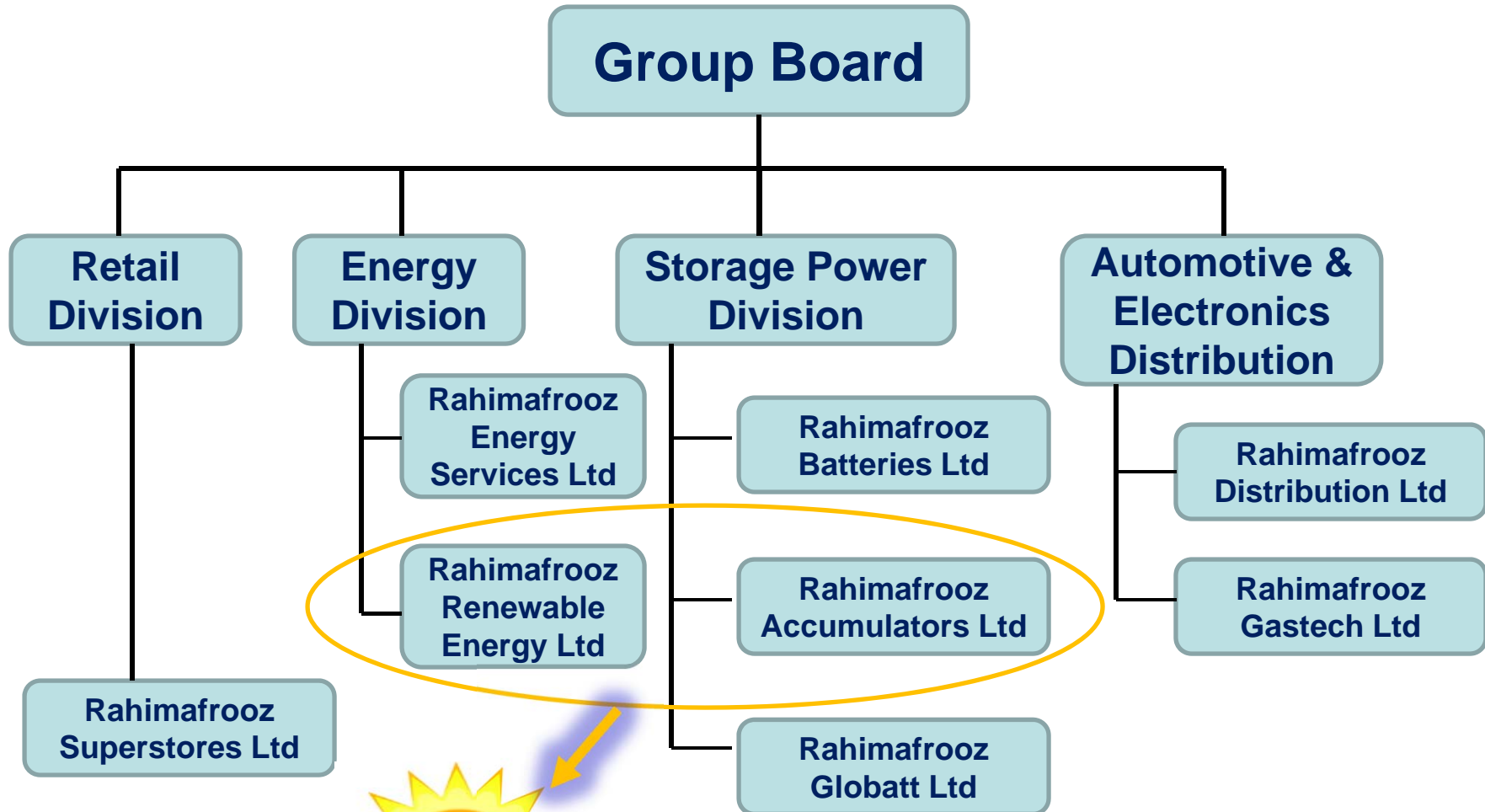


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Rahimafrooz Group Structure



Quality , Environmental & Safety Certifications of RAL



Orion Registrar, Inc., USA
Certificate of Registration

This is to certify the Quality Management System of:

Rahimafrooz Accumulators Limited
H.O. : 705, West Nakhhalpara, Tejgaon, Dhaka-1215, Bangladesh
Factory: Plot No. - RS 1,4, 48/4, West Panishail, Zirani Bazar, Kashimpur, Gazipur, Bangladesh



Has been assessed by Orion Registrar and found to be in compliance with the following Quality Standard:

ISO 9001:2008

The Quality Management System is applicable to:

Manufacturing, Sales and Marketing of Secondary Lead Acid Batteries for Industrial (Standby, Motive, Solar, VRLA and EV) Applications

*The Registration period is from May 31, 2011 to May 30, 2014
This registration is subject to the company maintaining its system to the required standard which will be monitored by Orion.
Client ID 00021-00003. Certificate ID J0001633-4
EAC Code: 19
See Corporate Certificate ID J0001704-1*

Paul M. Burck
Mr. Paul M. Burck, President
06/02/2011
Date

Orion Registrar Inc. ★ PO Box 745070 ★ Arvada, Colorado 80006-5070 ★ 303-456-6010 ★ FAX 303-456-6681
To authenticate this certificate please visit www.orionvalue.com

ISO 9001:2008



BUREAU VERITAS
Certification

Certification
Awarded to

RAHIMAFROOZ ACCUMULATORS LIMITED
HEAD OFFICE: 705, WEST NAKHALPARA, TEJGAON, DHAKA 1215, BANGLADESH.
FACTORY: R.S. DAG NO. 1, 4, 48/4, WEST PANISHAIL, ZIRANI BAZAR, KASHIMPUR, GAZIPUR, BANGLADESH.

Bureau Veritas Certification (India) Private Limited certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the standard detailed below

STANDARD
ISO 14001:2004

SCOPE OF SUPPLY
MANUFACTURE OF SECONDARY LEAD ACID STORAGE CELLS & BATTERIES FOR INDUSTRIAL APPLICATION (STANDBY, MOTIVE, SOLAR & EV).

Original Approval Date: 28 June 2010
Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: 27 June 2013
To check this certificate validity please call: +91 22 8696 6300
Further clarifications regarding the scope of this certificate and the applicability of the Management System requirements may be obtained by consulting the organisation.

Certificate Number: IND10.6469 Date: 28 June 2010



R. K. SHARMA
Director



Certification / Managing Office Address: "Marwah Centre" 6th Floor, Krishanlal Marwah Marg, Opp. Ansa Industrial Estate, Off Saki Vihar Road, Andheri (East), Mumbai - 400 072, India.

ISO 14001:2004



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STANDARD
BS OHSAS 18001:2007

SCOPE OF SUPPLY
MANUFACTURE OF SECONDARY LEAD ACID STORAGE CELLS & BATTERIES FOR INDUSTRIAL APPLICATION (SOLAR, EV, VRLA, MOTIVE AND STANDBY)

Original Approval Date: 15 September 2011
Next Recertification Due Before: 13 June 2014
Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: 14 September 2014
To check this certificate validity please +91 22 8696 6300 call:
Further clarifications regarding the scope of this certificate and the applicability of the Management System requirements may be obtained by consulting the organisation.

Certificate Number: IND11.3134



R. K. SHARMA
Director



Certification / Managing Office Address: "Marwah Centre" 6th Floor, Krishanlal Marwah Marg, Opp. Ansa Industrial Estate, Off Saki Vihar Road, Andheri (East), Mumbai - 400 072, India.

BS 18001:2007

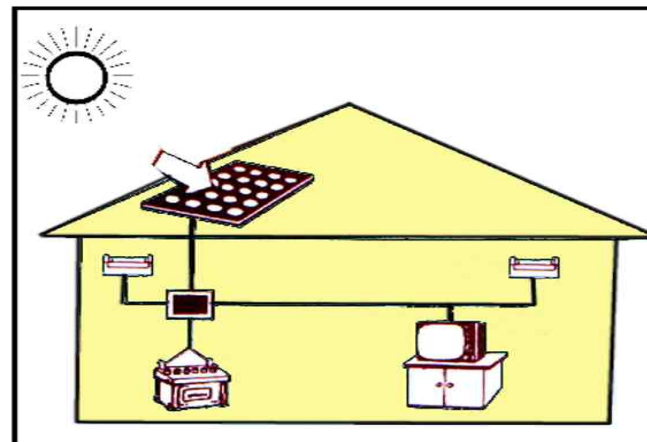
RAL: Rahimafrooz Accumulators Limited

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Typical installation of SHS in Bangladesh

Largest SHS rollout in the world



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SHS application in Bangladesh



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Ashden Award – UK, 2006

Rahimafrooz received Ashden award in 2006 for its contribution in renewable energy sector



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SHS Systems and Requirements in Bangladesh

SHS System in Bangladesh

- Number of SHS installed up to Sep. 2013: ≈ 2.3 Million
- System range: 10 – 90 Watt_p
- Battery range: 15 – 130 AH
- Number of batteries supplied by Rahimafrooz: ≈ 1.3 Million

SHS System Requirements

- Battery type: Tubular
- Batter warranty: 5 years
- Panel warranty: 20 years
- Daily operating hours: 4 hours
- Autonomy: 3 days
- Maximum DOD at the end of autonomy period: 80%

Some of the Tubular Batteries Manufactured by Rahimafrooz



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Performance of Tubular Batteries in SHS

- ❑ Tubular batteries have been used in SHS operation since 2001 in Bangladesh with 5 year warranty
- ❑ These are low maintenance type
- ❑ Operating in temperature range of 6 to 40 °C
- ❑ Application environment is not very controlled. Difficult to enforce the 4 hours max daily usages. Direct tapping on battery for mobile charging cannot be avoided
- ❑ Average 1% return per year
- ❑ Battery life so far observed in the field: 7 – 8 years

Success of SHS rollout in Bangladesh

During a interview given by Mr. Munawar M Moin, MD of Rahimafrooz Storage Power Division to PVTECH during the Intersolar Munich, 2013, he noted the following main reasons for the success of the rollout:

- ❑ System sales through micro financing arrangements
- ❑ Participation of multi-lateral agencies like World Bank, ADB, KFW, etc in the program with soft loan facilities
- ❑ Structured approach to rollout the program through IDCOL
- ❑ System performance as per expectation



THANK YOU



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