

Energy Saving and other Alternatives

1.0 Purpose

The purpose of this procedure is to define the energy saving measures as adopted a special feature for the projects identified by the Management.

1.1 Application

This procedure is applicable to the projects wherever feasible entrusted to KSPHC by the client organisation.

2.0 Responsibility

Responsibility lies with the Executive Engineer (Electrical)

3.0 Terms and definitions

- 1) **Activity** – smallest identified item of work in a project process.
- 2) **Capability** – ability of an organisation, system or process to realise a product that will fulfill the requirements for that product.
- 3) **Characteristic** – Distinguishing feature
- 4) **Concession** – Permission to use or release a product that does not conform to specified requirement.
- 5) **Contractor** - Organisation or person that provides a product (A producer, distributor, retailer or vendor of a product, or a provider of a service or information; in contractual situation, a supplier is also called as “contractor”; in the context of projects, ‘contractor’ or ‘subcontractor’ is often used in place of “supplier” or vice versa.
- 6) **Customer / Client / User Department** – Organisation or person that receives a product / service. In this case the HOD of the concerned Department is considered as the competent person for according approval.
- 7) **Energy saving and other alternative measures** – Measures taken to provide maximum ventilation, harvest solar power & wind energy, minimise the power consumption, etc.
- 8) **Deviation Permit** – Permission to depart from the originally specified requirements of a product prior to realisation.

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- 9) **Document** – Information and its supporting medium.
- 10) **Effectiveness** – Extent to which planned activities are realised and planned results achieved.
- 11) **Efficiency** – Relationship between the result achieved and the resources used.
- 12) **Interested party** – Person or group having an interest in the performance or success of an organisation.
- 13) **Process** – Set of inter-related or interacting activities, which transforms inputs into outputs.
 Note 1: Inputs to a process are generally outputs of other processes.
 Note 2: Processes in an organisation are generally planned and carried out under controlled conditions to add value.
 Note 3: A process where the conformity of the resulting product cannot be readily or economically verified is frequently referred to as a special process.
- 11) **Record** – Anything (Such as a document or a photograph) providing permanent evidence of or information about past events; it also includes documents in digital form
- 12) **Requirement** – need or expectation that is stated, generally implied or obligatory
- 13) **Review** – Activity undertaken to determine the suitability, adequacy and effectiveness of the subject matter to achieve established objectives.
 Note: review can also include the determination of efficiency
- 14) **Specification** – Document and stated requirements of the product.
- 15) **Verification** – Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled.
- 16) **Validation** – Confirmation, through the provision of objective evidence, that requirements for a specific intended use or application have been fulfilled.
 Note 1: The term “validated” is used to designate the corresponding status.
 Note 2: The use conditions for the validation can be real or simulated.

4.0 Procedures

Appropriate procedures for Energy saving and other alternatives shall be identified and applied to all the projects as far as feasible that are taken up by **KSPHC**. The appropriateness of the procedure for energy saving will be studied in depth by the concerned engineers during the planning phase of the project and approvals shall be

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obtained from the competent authorities after working out the feasibility and the cost benefit of the proposal. Depending on the resource availability, the appropriate procedures may be adopted in one or more phases. The details of the selected procedures as are being adopted in various phases will be documented as part of the project documentation.

The following Energy saving possibilities will be examined :

- (1) Orientation of building keeping Sun movement path in view to get maximum day light
- (2) Provide large size openings for day light harvesting to be maximised
- (3) Use of passive architecture to bring down temperature and minimise use of air conditioners.
- (4) Re-cycle waste water for non-potable uses
- (5) Use of alternative natural source of Energy such as Solar, Wind, etc
- (6) Use of Hand pumps instead of Energy pumps.

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5.0 Documentation structure

5.1 Lighting

Sl. No.	Activity	Description	Responsibility	Reference Documents.
1.	Preliminary reconnaissance	Type of lighting to be implemented	AEE / AE	
2.	Preparation of proposal	As per the site condition & usage of the areas Luminous will be calculated & designed	AEE / AE	
5.	Execution of work	Carry out the scheme as per the specifications	EE / AEE / AE	QSP 23 & Contract documents.
6.	Post construction activity	Effectiveness of the work carried out to be studied	AEE / AE	

5.2 Timer and occupying sensor

Sl. No.	Activity	Description	Responsibility	Reference Documents.
1.	Initiation	Provision to be made for optimising the level of power consumption	EE.	

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2.	Execution of work	To carry out the scheme as per the specifications	EE / AEE / AE	QSP 23 & Contract documents.
3.	Post construction activity	Effectiveness of the work carried out to be studied to know the objective achieved	AEE / AE	

5.3 High efficiency motors and power factor

Sl. No.	Activity	Description	Responsibility	Reference Documents.
1.	Initiation	Provision to be made for providing proper power factor	EE.	
2.	Execution of work	Depending upon the yield, discharge, head & actual requirement of water suitable motors to be proposed and To carry out the scheme as per the specifications	EE / AEE / AE	QSP 23 & Contract documents.
3.	Post construction activity	Effectiveness of the work carried out to be studied to know the objective achieved	AEE / AE	

6.0 Reference

- a) ISO 9001: 2000 Clause Number 7.0
- b) Quality Manual Clause Number 7.3

7.0 Associated Documents

- 1) Procedure for control of documents QSP 01
- 2) Procedure for control of records QSP 02
- 3) Procedure for project management QSP 12
- 4) Procedure for eco-friendly measures QSP 14
- 5) Procedure for control of non-conforming products QSP 24
- 6) Procedure for corrective action QSP 26
- 7) Procedure for preventive action QSP 27

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8.0 Revisions

Revision "00" – First issue.

9.0 Distribution of procedure

Chief Coordinator-QMS shall issue this procedure to all the functional heads

#Approved by	Top Management Committee
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Board of Directors of KSPHC on its 107th meeting held on 04-12-2004 vide resolution No. 2004/047 has constituted a Top Management Committee consisting of CMD, ED, CE and FA with MR and CC as co-opted members. Further the Board of Directors of KSPHC on its 111th meeting held on 29-12-2005 has authorised CMD to approve and issue the QSPs after review by the Top Management Committee.