

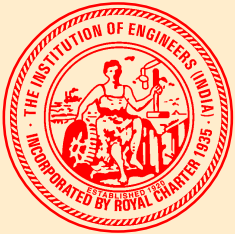
Institution of Engineers (India)

T.N. STATE CENTRE

BULLETIN

Chairman :
Er. K.P. Ramanathan, FIE

Honorary Secretary :
Er. D. Sundarasekaran, FIE



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April 2016

From the Chairman's Desk....

Dear Engineers,

I would like to highlight about the renewable energy in India through this bulletin.

Renewable energy in India comes under the purview of the Ministry of New and Renewable Energy. India was the first country in the world to set up a ministry of non-conventional energy resources, in early 1980s. India's cumulative grid interactive or grid tied renewable energy capacity (excluding large hydro) has reached 33.8 GW, of which 66% comes from wind, while solar PV contributed nearly 4.59% along with biomass and small hydro power of the renewable energy installed capacity in India.

- Renewable energy sources
- Solar power
- Wind power
- Waste to energy

1. Renewable energy sources

The sources of renewable energy from wind power - 24,759 MW, Solar power (SPV) - 4,684 MW, Small Hydro Power - 4,161 MW, Biomass Power (Biomass & Gasification and Bagasse Cogeneration) - 4,550 MW and Waste to Power - 127 MW. The total installed Capacity was 38,283 MW.

2. Wind Power

The development of wind power in India began in the 1990s, and has significantly increased in the last few years. Although a relative newcomer to the wind industry compared with Denmark or the US, domestic policy support for wind power has led India to become the country with the fifth largest installed wind power capacity in the world. Wind power accounts for 6% of India's total installed power capacity, and it generates 1.6% of the country's power. In its 12th Five Year Plan (2012-2017), the Indian Government has set a target of adding 18.5 GW of renewable energy sources to the generation mix out of which 11 GW is Wind Energy.

These are some of the India's largest wind farms:

- Muppandal wind farm - 1500 MW
- Jaisalmer wind park - 1275 MW
- Brahmanvel windfarm - 528 MW
- Dhalgaon windfarm - 278 MW
- Chakala windfarm - 217 MW
- Vankusawade Wind Park - 189 MW
- Vaspet Wind farm - 144 MW

3. Solar Power

India is densely populated and has high solar insolation, an ideal combination for using solar power in India. Much of the country does



not have an electrical grid, so one of the first applications of solar power has been for water pumping, to begin replacing India's four to five million diesel powered water pumps, each consuming about 3.5 kilowatts, and off-grid lighting. Some large projects have been proposed, and a 35,000 km² area of the Thar Desert has been set aside for solar power projects, sufficient to generate 700 to 2,100 giga watts.

The Indian Solar Loan Programme, supported by the United Nations Environment Programme has won the prestigious Energy Globe World award for Sustainability for helping to establish a consumer financing program for solar home power systems. Over the span of three years more than 16,000 solar home systems have been financed through 2,000 bank branches, particularly in rural areas of South India where the electricity grid does not yet extend.

4. Waste to Energy

Every year, about 55 million tonnes of municipal solid waste (MSW) and 38 billion litres of sewage are generated in the urban areas of India. In addition, large quantities of solid and liquid wastes are generated by industries. Waste generation in India is expected to increase rapidly in the future. As more people migrate to urban areas and as incomes increase, consumption levels are likely to rise, as are rates of waste generation. It is estimated that the amount of waste generated in India will increase at a per capita rate of approximately 1-1.33% annually. This has significant impacts on the amount of land that is and will be needed for disposal, economic costs of collecting and transporting waste, and the environmental consequences of increased MSW generation levels. Waste Energy In India.

India has had a long involvement with anaerobic digestion and biogas technologies. Waste water treatment plants in the country have been established which produce renewable energy from sewage gas, however there is significant un-tapped potential. Also wastes from the distillery sector are on some sites converted into biogas to run in a gas engine to generate onsite power.

The Types of Waste can be broadly classified into

- Urban Waste
- Biomass Waste
- Industrial waste
- Biomedical waste

Keeping in view, the Institution of Engineers (India), Tamilnadu State Centre is organizing an All India Seminar on "Renewable Energy-Present Scenario" on 15th & 16th April 2016 to deliberate broadly during the seminar by the subject matter experts.

Thank you,

I will meet you again.

Er K P Ramanathan
Chairman

Talk on “Requirements of ISO 9001:2015” Er G Venkataraman, B.E, Chief, Quality Services International, Chennai

27th February 2016



A technical guest lecture meeting was held on 27th February 2016 at 6.00 pm in IE(I), Tamilnadu State Centre auditorium. The topic of the day was on “Requirements of ISO 9001:2015”. Er K P Ramanathan, FIE, Chairman welcomed the gathering and introduced the Chief Guest Er G Venkataraman, B. E, Chief, Quality Services International, Chennai. Er G Venkataraman delivered the lecture on the above topic with power point presentation.

In his lecture he explained, ISO 9001 - the most popular management systems standard was published in 1987; revised in 1994, 2000, 2008 and 2015. Along with it, the reference standard ISO 9000 was also revised in 2015.

Why is a standard revised by ISO?

All ISO standards are reviewed every five years to establish if a revision is required to keep it current and relevant for the market place. In addition to responding to the latest trends, Management systems standards (MSS) have to meet the Appendix 3 of Annex SL requirements for formatting and content in a broad sense. It is the intention of ISO to make all MSS standards to have same high level structure, identical core text, common terms and core definitions, so that implementation of integrated management systems becomes easier. As we all are aware, integration helps in simplification, reduction in efforts, cost and above all, time.

What are the sub titles as given in the Appendix?

Scope; Normative references; Terms and definitions; Context of the organization; Leadership; Planning; Support; Operation; Performance evaluation and Improvement.

Similarly the **eight management principles** on which the MSS was based have also been revised to 7 principles. The new principles are 1) Customer Focus 2) Leadership 3) Engagement of People 4) Process Approach 5) Improvement 6) Evidence-based decision making and 7) Relationship Management

What advantages are claimed by this high level structure?

- Format is streamlined; clarity brought in; paper work reduced; made more generic by defining product as "products and services"; the whole standard is meant for improvement and hence all actions are preventive in nature.

Now let us see the new requirements. Please keep the new (2015) and old (2008) books handy for reference!

Context of the organization

Determine external and internal issues.

(Can we say business or organizational environment, ecosystem of an organization?)

- External issues arising from legal, technological, competitive, market, cultural, social and economic environments - national, international, regional or local
- Internal issues related to values, culture, knowledge, and performance of the organization

Issues can include positive and negative factors or conditions for consideration.

“Customer requirements” changed as **“needs and expectations of interested parties”**.

Who are the suggested interested parties?

Customers, owners, employees, suppliers, bankers, regulators, unions, partners, society, competitors, pressure groups.

Determine their requirements and monitor and review.

Scope of the QMS has to take into account the external and internal issues, requirements of interested parties and products and services

The term **“documented information”** is introduced; **“Exclusion”** from the old standard has to be mentioned in this clause but without calling it by that name!

Determine the "processes" indicating **“inputs”** and **“outputs”**.

Address **“risks”** (effect of uncertainty) and **“opportunities”**; **Major and important point.**

“Quality Manual” is not called for. To the extent necessary, maintain documented information (manual, procedures, WIs?) and retain documented information (records?) to have confidence that processes are carried out as planned.

Top management

Leadership and commitment

Top management's role is more defined and more prescriptive

Top management has to a) take accountability b) Promote risk based thinking; c) Integrate QMS into business processes d) Engage, direct and support persons for QMS

Policy; Responsibility and authority

Quality Policy: No major changes except that it shall be **“available to interested parties”** instead of "within the organization"

Responsibilities and authorities (in plural!) "Management Representative" is not mentioned and hence is not mandatory! Can we manage without a coordinator?

Under **“Planning”**, actions to address risks are suggested.

Why do we determine risks and opportunities?

To a) Enhance desirable effects; b) Prevent or reduce undesired effects
c) To assure QMS achieves intended results d) Achieve improvement

What are the options to manage risks?

Can include: Avoiding risk; Taking risk to pursue an opportunity; Eliminating risk source; Changing likelihood of consequences; Sharing the risk; Retaining risk by informed decision;

Opportunities can lead to

Adoption of new practices; launching new products; locating new markets, new customers, new technology

Other desirable and viable possibilities;

Under **“Objectives”**, **‘measurable’** criteria are maintained; they have to be relevant to product conformity and enhancement of customer satisfaction. In other words, general objectives like total production, profits etc. are not recognized as Quality objectives. Documenting objectives is mandatory. Also, determination of **“who, when, what, how”** for achieving objectives is emphasized (Can we say **“action plan for achieving objectives”**?)

Under **“Support”**, **environment** includes: Social (e.g. calm, non-discriminatory, non-confrontational); Psychological (e.g. stress-reducing, burn-out prevention, emotionally protective); Physical (temperature, heat, humidity, light, airflow, hygiene, noise). Some companies are doing them already under other names.

Organizational knowledge is emphasized.

(contd. on page 3)

(contd. from page 2)

Determine the knowledge required; maintain and make it available to the extent necessary.

Knowledge can be based on

- Internal sources (e.g. IP, experience, lessons learned from success and failure, results of improvements etc.)
- External sources (e.g. standards, academia, conferences, gathering information from users, or external parties)

No major change in **competence; communication**

The word "skill" is no more the basis to determine competence; "take other actions" is explained as to include training, mentoring, re-assignment, hiring or contracting competent persons.

Internal and external communication to include what, when, whom, how and who.

Documented information includes both documents and records

No mandatory requirement for Quality Manual; but can you do away with it?

Under **"operation"**

Product is changed to **"products and services"**. No major change except that customer communication is elaborated.

Design & development of products and services

"Planning" for design is elaborated; Review, validation, verification are not covered as sub clauses as it was earlier

"Purchasing" has become "externally provided products, processes, services".

Under 'control of production and service provision' **prevention of human error** is included.

Under **"identification and traceability"**. Note indicating configuration management is deleted.

Preservation of product during processing is clarified as "outputs" during production and service provision.

"Post-delivery activities" is covered under separate sub clause.

Other changes

Sub clauses added for **"control of changes"** and **"release of products and services"**.

"Non-conforming product" is changed as **"non-conforming output"** otherwise no major change. No major change in monitoring customer satisfaction.

Analysis of data includes actions taken to address risks and opportunities.

No major change in internal audit.

Management review; improvement

No major change except risks & opportunities included.

Improvement may include correction, corrective action, continual improvement, breakthrough change, innovation, re- organization.

Updating "risks and opportunities" included for corrective action.

Continual improvement: No major change in continual improvement.

Most important change

"Preventive action" is not finding place in the new standard- The purpose of implementing the QMS is to ensure "good" products and for preventing NCs and problems; the whole activity is preventive in nature!

In short, changes in the new standard are not 'earth shaking"! Sufficient and (more!) time is given for effecting changes!

Hence, there is no cause for worry by implementers of the standard to the new version. However, the following have to be done.

- changes have to be made in "documented information", i.e. manual, procedures, work instructions etc, as may be required
- suitable and adequate training has to be organized at various levels
- Internal audit is to be carried out and implementation ensured, before calling the certification body.
- implementation has to be reviewed by management

A consultant can help but not essential; it can be managed by internal resources, if available.

Er K P Ramanathan, FIE, Chairman presented the memento to the Chief Guest Er G Venkataraman. Er D Sundarasekaran, FIE, Honorary Secretary proposed the vote of thanks. About 20 members participated in the program.

World Water Day

22nd March 2016



The Tamilnadu State Centre of the Institution of Engineers (India) observed the World Water Day on Tuesday the 22nd March 2016 at the IE(I) Auditorium, Chennai. At the outset, Chairman, Er K P Ramanathan, FIE welcomed the gathering and introduced the Chief Guest Er B Rajeswari, B.E., Chief Engineer (SG&SWRDC), Chennai.

At the outset the Chief Engineer welcome the gallery with the slogan of "Happy World Water Day". She expressed her gratitude for having given a chance to deliver a lecture on the auspicious day of World Water Day 2016.

She requested all the participants to follow water saving techniques to conserve water. She also requested to educate the society on this aspect. She explained about the necessity for the construction of artificial recharge structures to raise the falling ground water levels. She briefly explained about the construction of artificial recharge structures being

executed by this department including selection of sites.

She highlighted in her speech about the importance of Virtual water management, the water being indirectly used for producing of various goods. She explained about the assessment of Ground Water in the units of over exploited, critical, semi critical, safe and saline. She also spoke about the latest assessment being carried out on firka basis.

She highlighted the importance of conservation of water. She made a mention of WRCP and IAMWARM projects being implemented by Water Resources Department of Tamilnadu. She mentioned in the ideology of more crop per drop of water. She also stressed the need for improving of field efficiency in the irrigation sector from the present prevalence of 35% to world average of 70%.

She talked about the environmental impact assessment. She explained about various pollutions in the water sector and express the need to stop the water pollution immediately. She informed that in the last 10 yrs more than 10 crore trees have been felled for widening of roads and this has been one of the reasons for increase in global temperature which is one of the main culprits for climate change.

She made a mention of Sea Water Intrusion in coastal areas. She explained about the sea water intrusion studies presently under taken by this department and the future activities to be under taken in the centralized sponsored coastal area management project.

Er K P Ramanathan, FIE Chairman honoured the Chief Guest Er B Rajeswari with memento. The day was concluded with a Vote of Thanks proposed by Er D Sundarasekaran, FIE Honorary Secretary. About 30 members took part in this event.

To

The Honorary Secretary
The Institution of Engineers (India), Tamilnadu State Centre
19 Swami Sivananda Salai, Chennai - 600 005

**Make your contributions
(Minimum Rs. 1000/-) through this slip**

Dear Sir,

CONTRIBUTION TO THE IEI-TNSC BUILDING DEVELOPMENT FUND

In response to your appeal, I/we enclose a Cheque/DD for Rs. (Rupees
..... only) as my / our contribution to the Institution of Engineers (India), Building
Development Fund.

Encl: Chq./DD No. Dt. for Rs. Yours faithfully,

From Address:

Memb. No.

TECHNICAL PROGRAMME FOR APRIL 2016

Lecture: 6.00 p.m.

Venue: IE (I) Auditorium (Unless mentioned otherwise)

Tea: 5.45 p.m.

15th & 16th April 2016 Two days All India Seminar on “Renewable Energy – Present Scenario” by **Er K Sivaprakasam**, MIE, Co-opt Member, Electrical Engineering Division, IE(I), TNSC.
9.00 a.m.-5.00 p.m.

23rd April 2016 Talk on “Electricity from Solar Rays, A New Equipment” by **Er T R Jayaraman**, AISM (Associateship of Indian School of Mines), FIE, BCA, M.A.(Phil), (Retired), CMD of South Eastern Coalfields Ltd.

30th April 2016 Talk on “Impact of technology on sports materials” by **Dr S Ramesh**, FIE, Head of Department (Mechanical Division), KCG College of Technology, Chennai

FORTHCOMING EVENTS

17th May 2016 World Telecommunication and Information Society Day on the theme “ICT Entrepreneurship for Social Impact”

24th & 25th June 2016 Two days All India Seminar on “Make in India” by **Er K S Ramalingam**, MIE, Co-opt Member of the Mechanical Engineering Division, IE(I), TNSC.

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Bulletin

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