

Normalizations under PAT



New Delhi

Piyush Sharma

12.05.2016

Bureau of Energy Efficiency
INDIA

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Normalization and its need

What

It is a process of rationalization of the energy and production data of a plant to take into account the impact of quantifiable external variables that are beyond the control of a designated consumer.

Why

To ensure that the Designated Consumers is not placed in a position of advantage or disadvantage when compared to baseline scenario

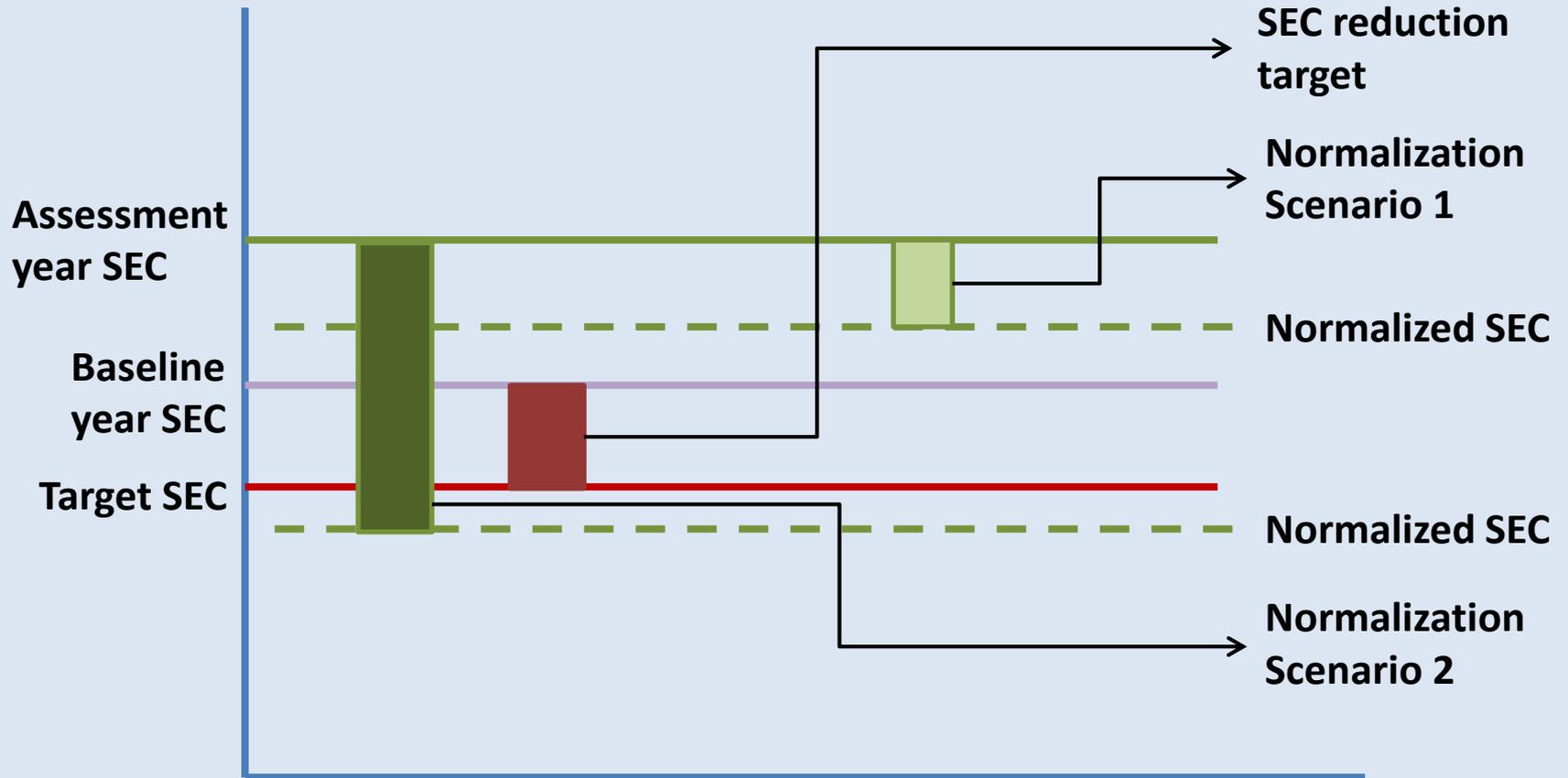
How

It was done through several technical committee meetings and various consultation workshop identifying the issues of DCs, and finding out ways to address them

Requirements

Authentic relevant documents as per prescribed guidelines and instruction sheet should be submitted. Since normalization are compared to a baseline, hence all the data required, should be of baseline as well as assessment year.

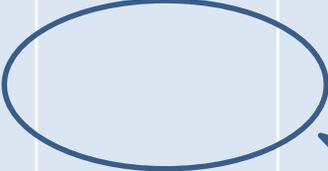
Concept of Normalization



Normalization Factors- Broad Categorization

- **Capacity Utilization**
 - **Availability of Fuel/Raw Material** (Effect on Capacity Utilisation)
 - **Natural Calamity/Rioting/Social Unrest/Labor Strike/Lockouts** (Effect on Capacity Utilisation)
 - **Start/Stop**
- **Product Mix & Intermediary Product** (Import/Export)
- **Fuel Mix**
- **Power Mix** (Imported & Exported from/ to the grid and self-generation from the captive power plant)
- **Fuel Quality**
- **Low PLF**
- **Raw Material Quality**
- **Environmental Concern** (Additional Environmental Equipment requirement due to major change in government policy on Environment)
- **Biomass/Alternate Fuel Unavailability**
- **Construction Phase or Project Activities**
- **Addition of New Line/Unit** (In Process & Power Generation)
- **Unforeseen Circumstances**
- **APC Normalization**
- **Start-up/ shut downs due to external factors**

Documents

K	Documentation for Normalisation			Previous Year	Current Year	Source of Data
(i)	Fuel Quality in CPP-Documents Available for Normalisation		Yes/No			
(ii)	Intermediary Product-Documents Available for Normalization		Yes/No			
(iii)	PLF- Document Available for Normalisation		Yes/No			
(iv)	Power Mix-Documents Available for Normalisation		Yes/No			
(v)	Product Mix-Documents Available for Normalisation		Yes/No			
(vi)	Notional Energy for other Factors		Yes/No			

Example of normalization – TPP sector

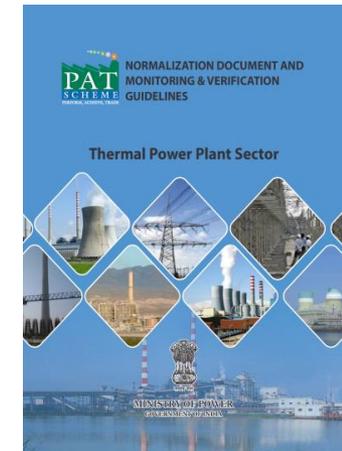
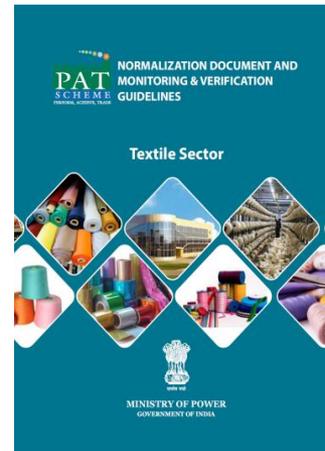
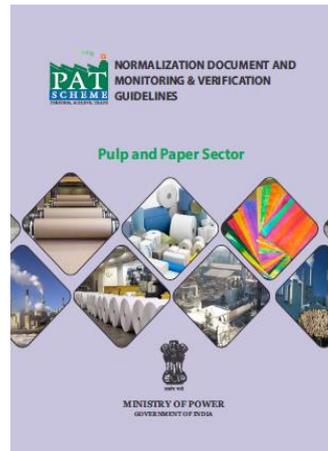
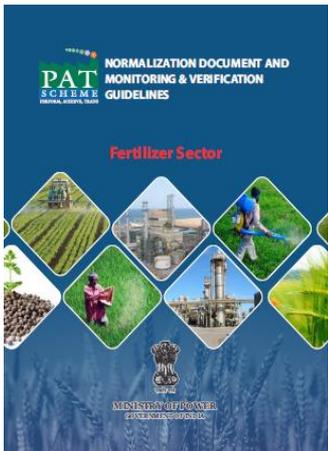
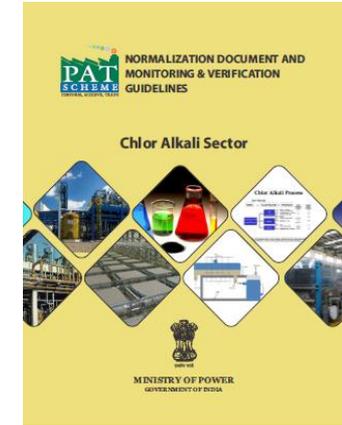
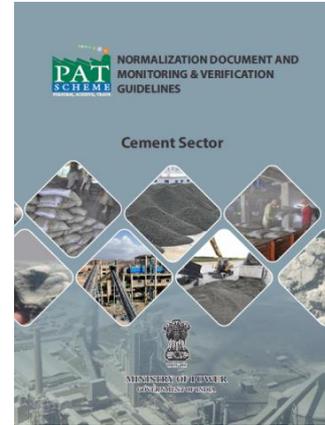
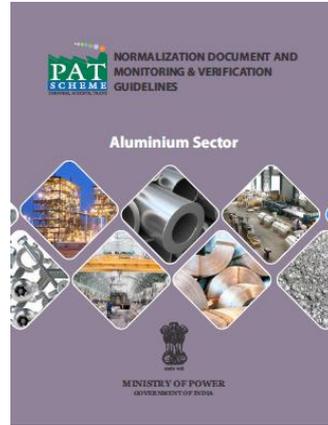
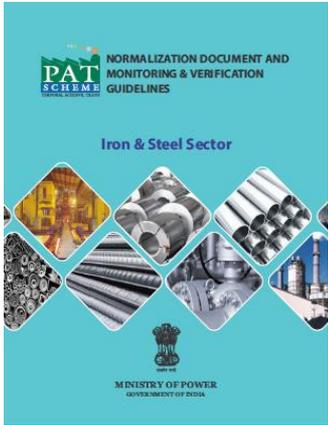
- ❑ Coal Quality [With Fuel linkage]
- ❑ Plant loading factor
 - Scheduling
 - Fuel Availability
- ❑ Auxiliary Power Consumption
 - Due to low loading
 - Due to fuel quality
- ❑ Start/ Stop of unit
 - Electrical Energy
 - Thermal Energy
- ❑ Environmental Concern
- ❑ Natural Disaster & Unforeseen Circumstances
 - Electrical Energy
 - Thermal Energy

Example of normalization – TPP sector

Documents required

- ❑ Coal Quality- day wise Internal lab reports, external NABL accredited lab reports for coal sampling (proximate and ultimate), for AY and BY
- ❑ Plant loading factor- block wise DC, SG, SI, for AY and BY; LDC communications; documents showing unavailability of fuels from supplier; OEM characteristic curve for load Vs heat rate
- ❑ Auxiliary Power Consumption- APC and loading factors for entire year; curve plotted to show APC pattern at various loadings, energy meter readings for equipment
- ❑ Start/ Stop of unit – LDC communications citing stoppage of units; energy meter readings
- ❑ Environmental Concern- document citing change in environmental norms, design data and P.O. of new equipment. Energy consumption of same
- ❑ Natural Disaster & Unforeseen Circumstances- letters or references citing unforeseen circumstances as applicable.

Normalization Documents and M&V guidelines



<https://beeindia.gov.in/content/pat-3>

Normalization factors in Petroleum Refinery (proposed)

- New Units which are unique to a refinery, & are not part of current MBN methodology
- Fuel for commissioning of new units
- Change in severity of units for quality up-gradation
- Impact of annual turn-around over baseline year
- Project mechanically completed, but not commercialized due to requirement of alignment with shutdown opportunity

Thank You

E-mail ID: piyush.sharma@giz.de