Modelling Real Energy Consumption in Industrial Production

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Color & Comfort

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Overview

Modelling Real Energy Consumption in Industrial Production

Contact: Rainer Gemulla rgemulla@uni-mannheim.de

Language: English

Project time: 6 months

Min / max participants: 3-6

Prerequisite: Data Mining I / Machine Learning or equivalent, good programming skills

Project suitability for MMDS: yes

Online: no

Sun Chemical – Global Leader in Inks, Color Materials & Advanced Materials

SunChemical®
a member of the DIC group DIC Color & Comfort

Packaging & Graphics

- Flexographic
- Offset / Commercial
- Publication
- Screen Graphics & Industrial
- Security
- Coatings

Color Materials

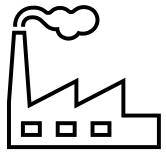
- Classical Pigments
- High Performance Pigments
- Inorganic Pigments
- Effect Pigments
- Preparations, Dyes & Masterbatches

Advanced Materials

- Digital Inkjet
- Electronic Materials
- Printed Circuits
- Liquid & Solid Compounds
- Polymers

The Goal and Challenges

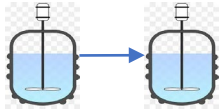
Production building



Steam

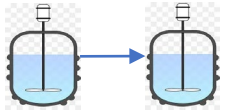
Electricity

Production line 1



Asset 1 Asset 2

Production line 2

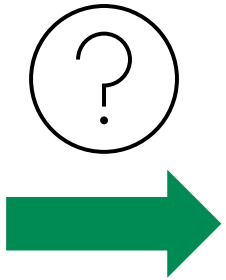


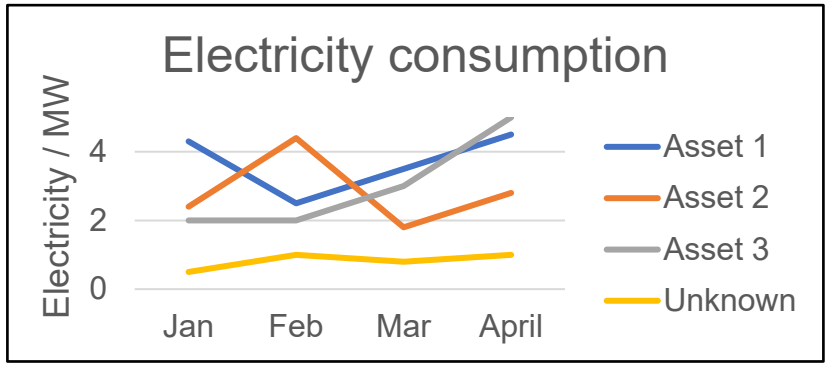
Asset 3 Asset 4

Production line 3

Asset 5

Energy meters only at building entrance, but consumption in different assets.





Goal:

- Obtain asset and product specific energy consumption for given time and amount with high confidence level.
- Identify limitations from current data availability and quality.

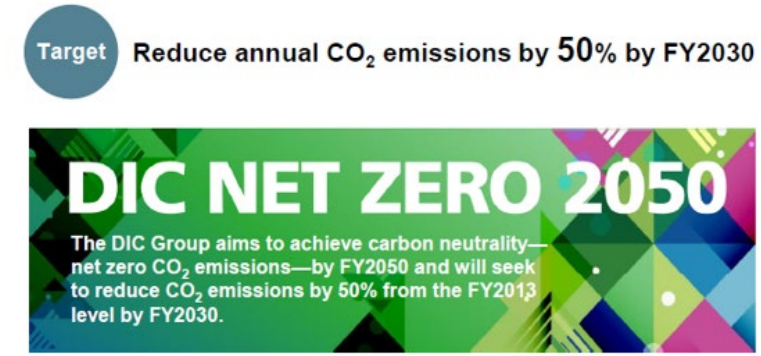
Challenge:

- Various degree of data availability with regards to time and local granularity
  Examples:
  - 1 steam and 1electricty meter for multiple reactors
  - Steam meter reading per minute
  - Electricity meter reading per month
  - Production volume in days per production line
  - Production time per asset in hours
- Potentially additional unknown energy consumers

Motivation and Benefits

Motivation for Sun Chemical

- Achieve DIC Group Target for CO_2 reduction



- Increase energy efficiency
- Understand complex energy consumption
- Create sufficiently accurate energy model that can easily be adapted for further plants and sites

Benefits for YOU

- Working with real industrial data
  - 2,5 years of data
  - 10 production lines
  - 38 products
  - 18 meters of 9 different energy types
- Addressing the common challenge of energy allocation
- Enabling climate change mitigation action plans
- Supporting carbon neutrality path of a company