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# Can we improve energy performance if we can't quantify it?

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**TOGETHER**  
*for a sustainable future*



**GLOBAL ENVIRONMENT FACILITY**  
INVESTING IN OUR PLANET

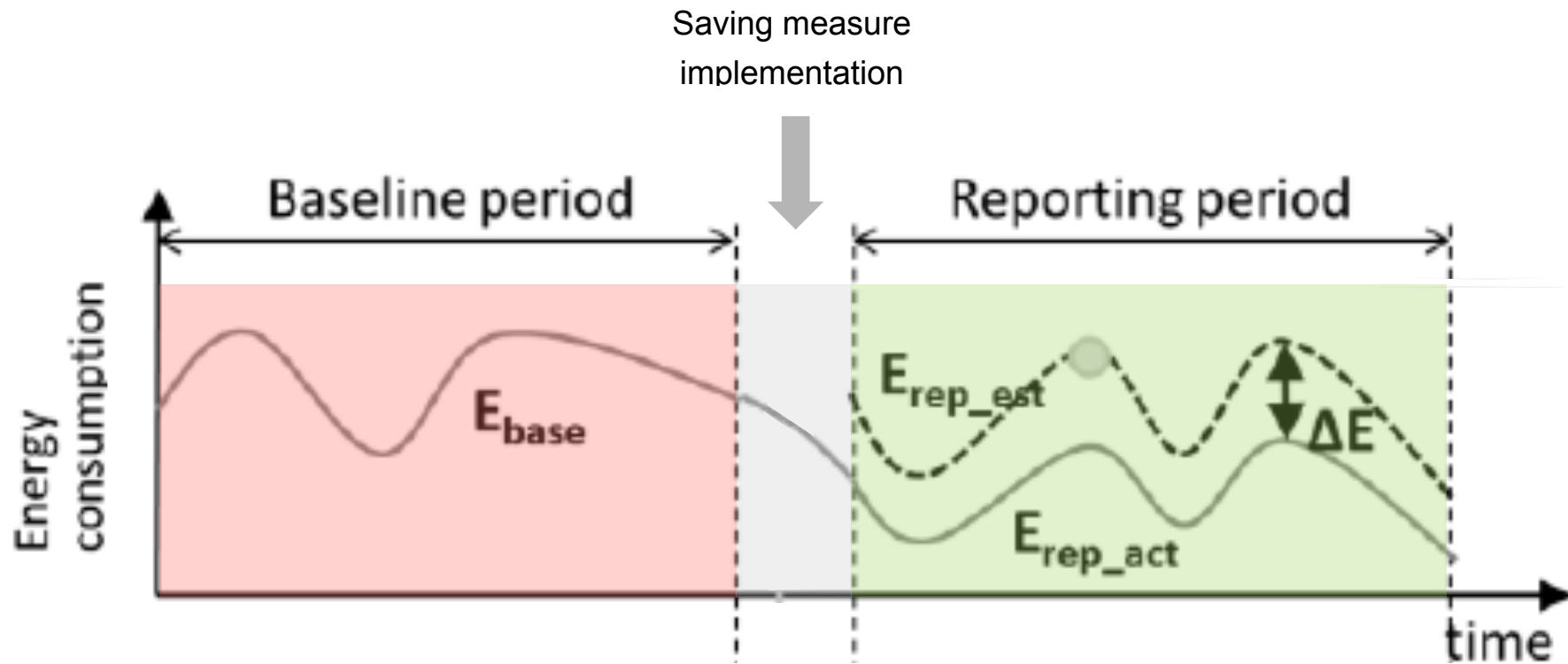
This presentation has benefited from the work carried out by and with the **United Nations Industrial Development Organization (UNIDO)** within the scope of its Global Energy Management System Capacity Building and Implementation Programme, sponsored by the **Global Environment Facility**

# Some facts

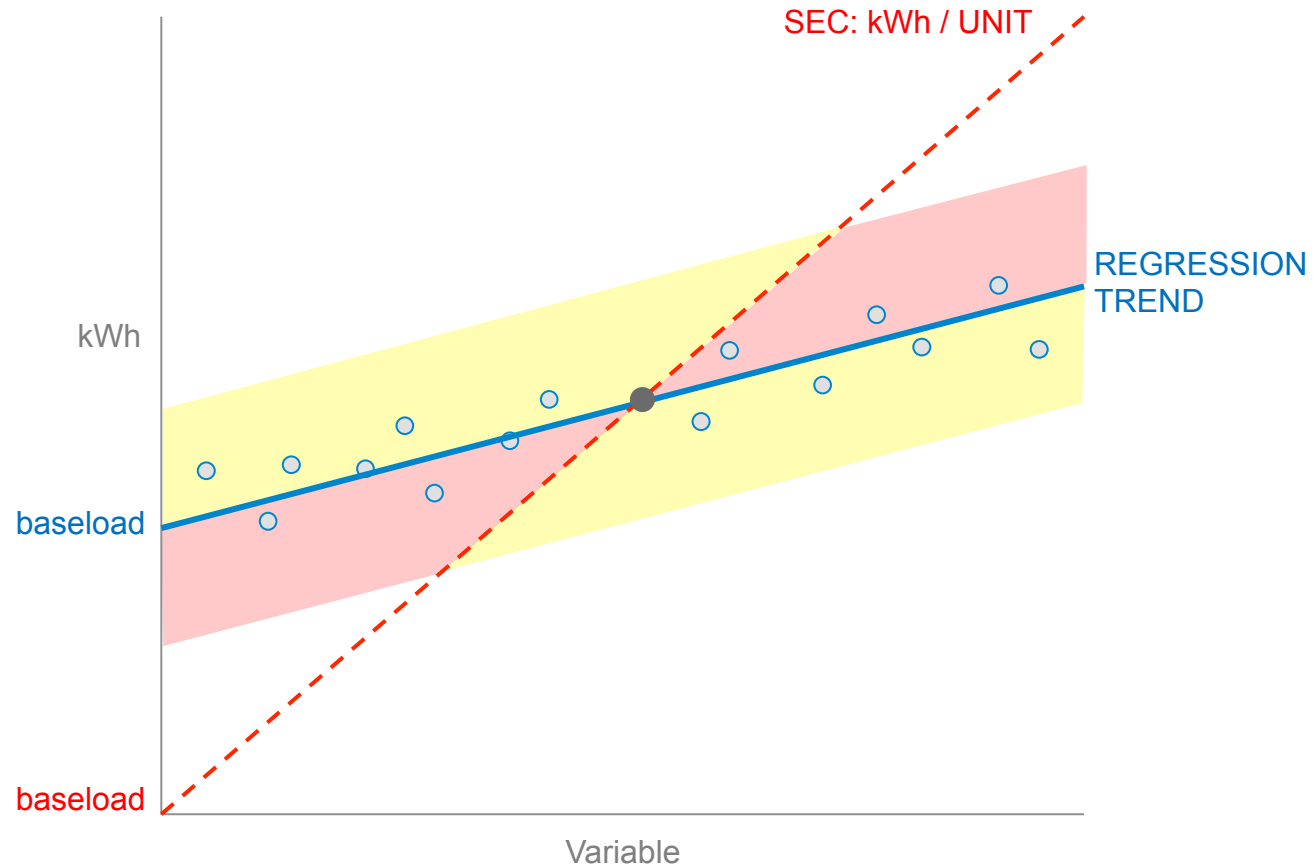
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1. Meters **CANNOT** measure energy that is not consumed
2. We **CANNOT** measure energy savings precisely
3. We should measure them **AS PRECISELY AS POSSIBLE**
4. **BASELOAD** exists in almost every organization
5. **RELEVANT VARIABLES** should be taken into account
6. **SEC** is widely used as a measure of Energy Performance and **does NOT take into account 4. and 5.**

# Measurement, Monitoring, Verification



# Regression vs SEC



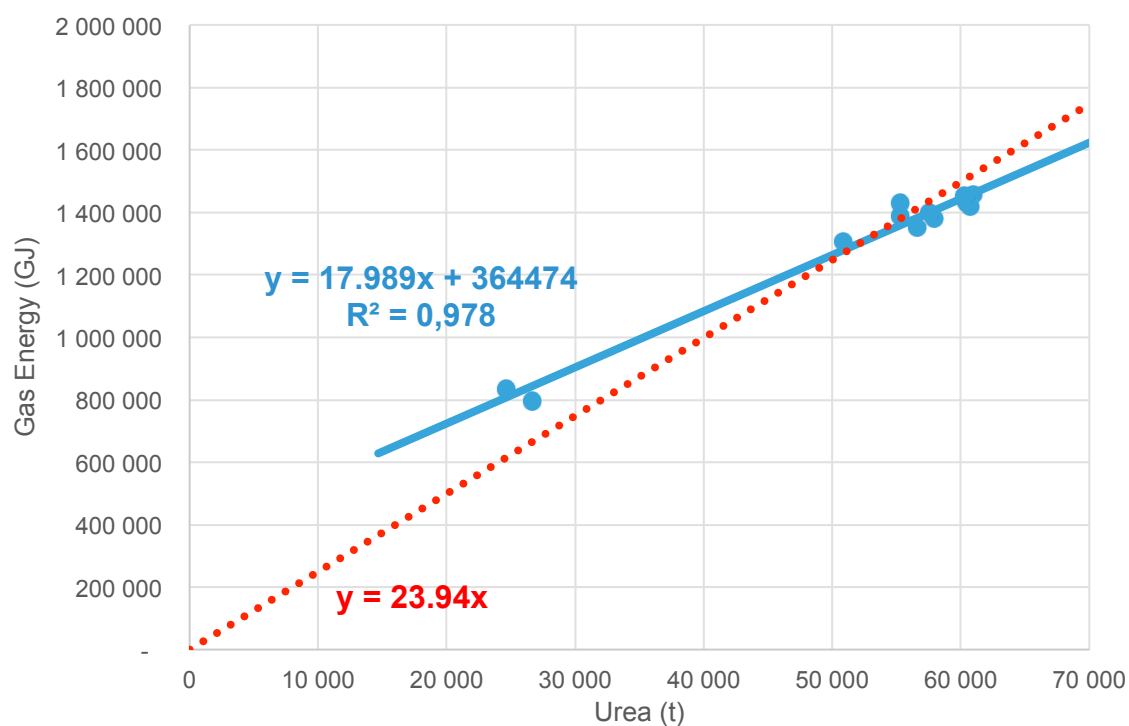
Using SEC shows not only **NON PRECISE RESULTS** (yellow)  
but usually **CONTRARY RESULTS** (red)



# Regression vs SEC

| Date  | Urea (Ton) | Gas Energy (GJ) | Ratio |
|-------|------------|-----------------|-------|
| 92-1  | 60,975     | 1,459,756       | 23.94 |
| 92-2  | 60,439     | 1,433,852       | 23.72 |
| 92-3  | 60,714     | 1,419,236       | 23.38 |
| 92-4  | 55,317     | 1,387,274       | 25.08 |
| 92-5  | 50,877     | 1,308,811       | 25.73 |
| 92-6  | 60,266     | 1,453,399       | 24.12 |
| 92-7  | 56,554     | 1,353,021       | 23.92 |
| 92-8  | 57,929     | 1,379,231       | 23.81 |
| 92-9  | 55,308     | 1,431,928       | 25.89 |
| 92-10 | 26,606     | 796,450         | 29.93 |
| 92-11 | 24,672     | 835,078         | 33.85 |
| 92-12 | 57,553     | 1,398,561       | 24.30 |

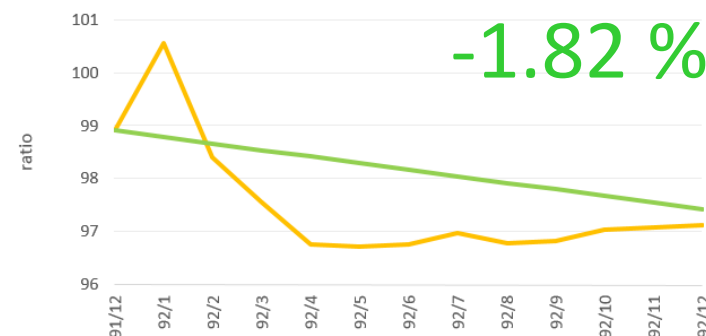
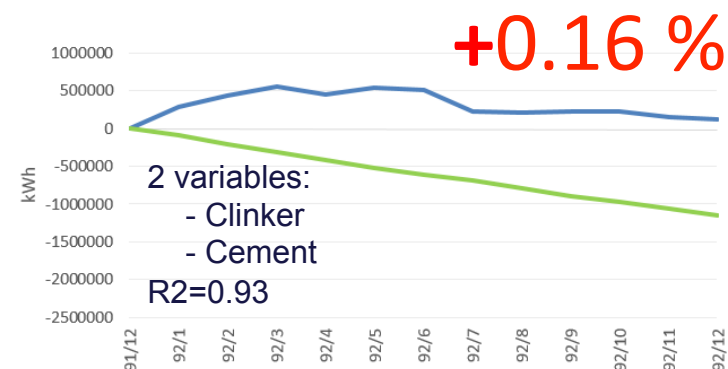
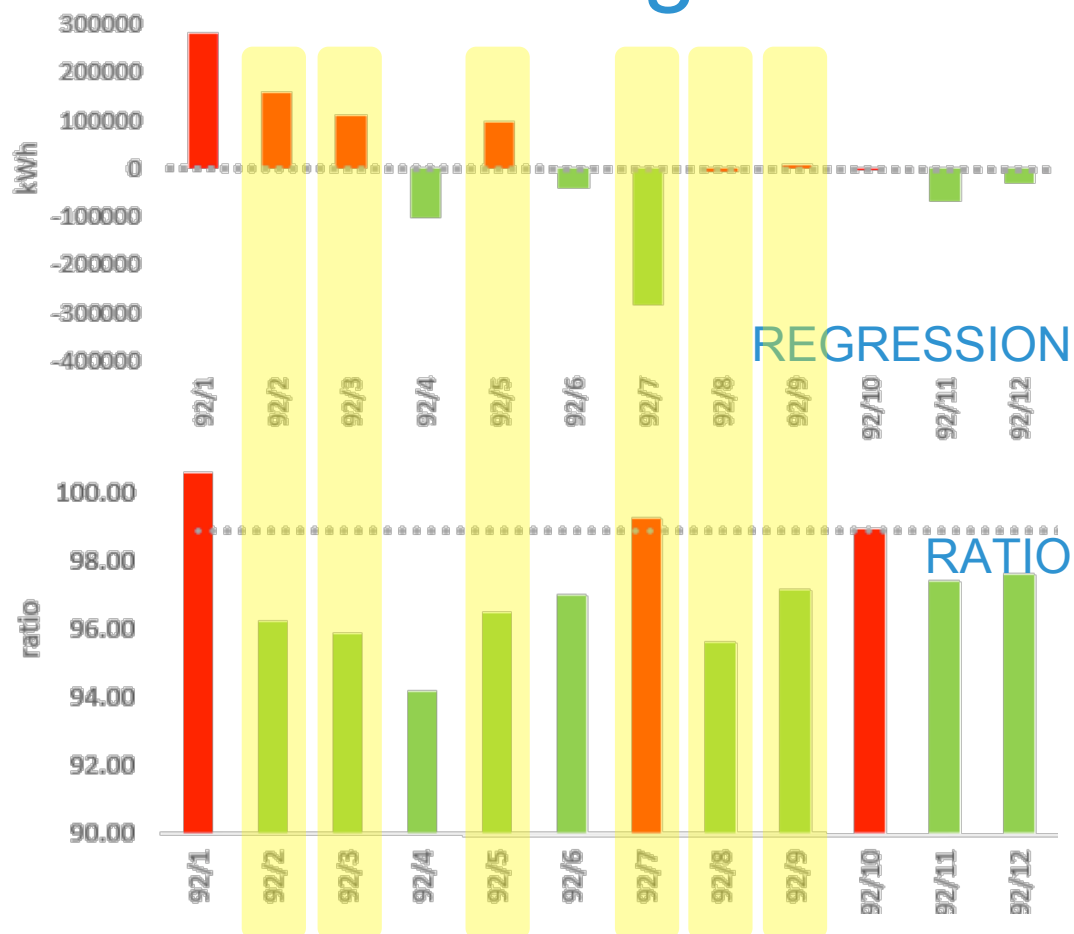
| Annual ratio |
|--------------|
| 23.94        |



*\*Urea industry*



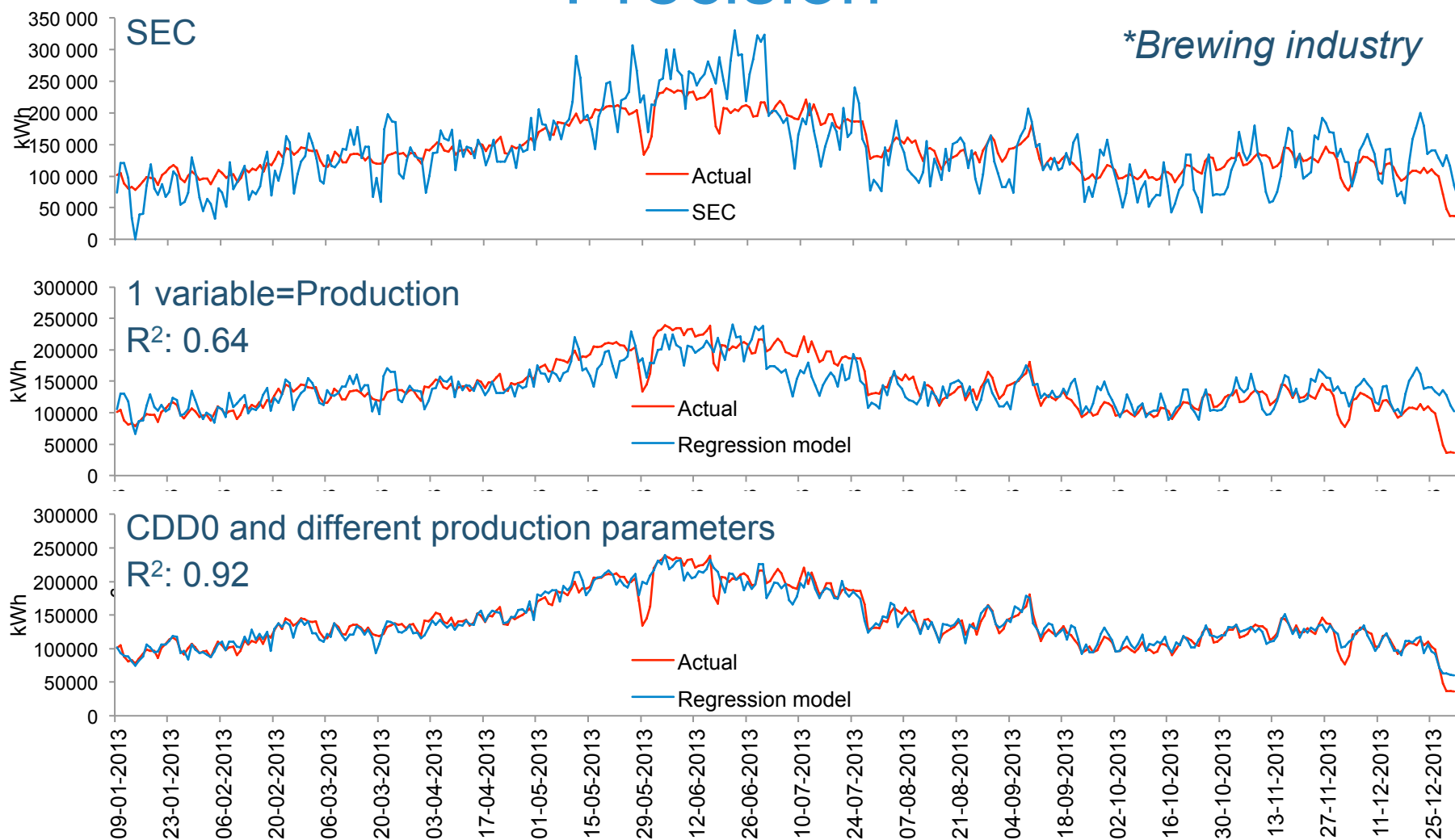
## Regression vs SEC



*\*Cement industry*

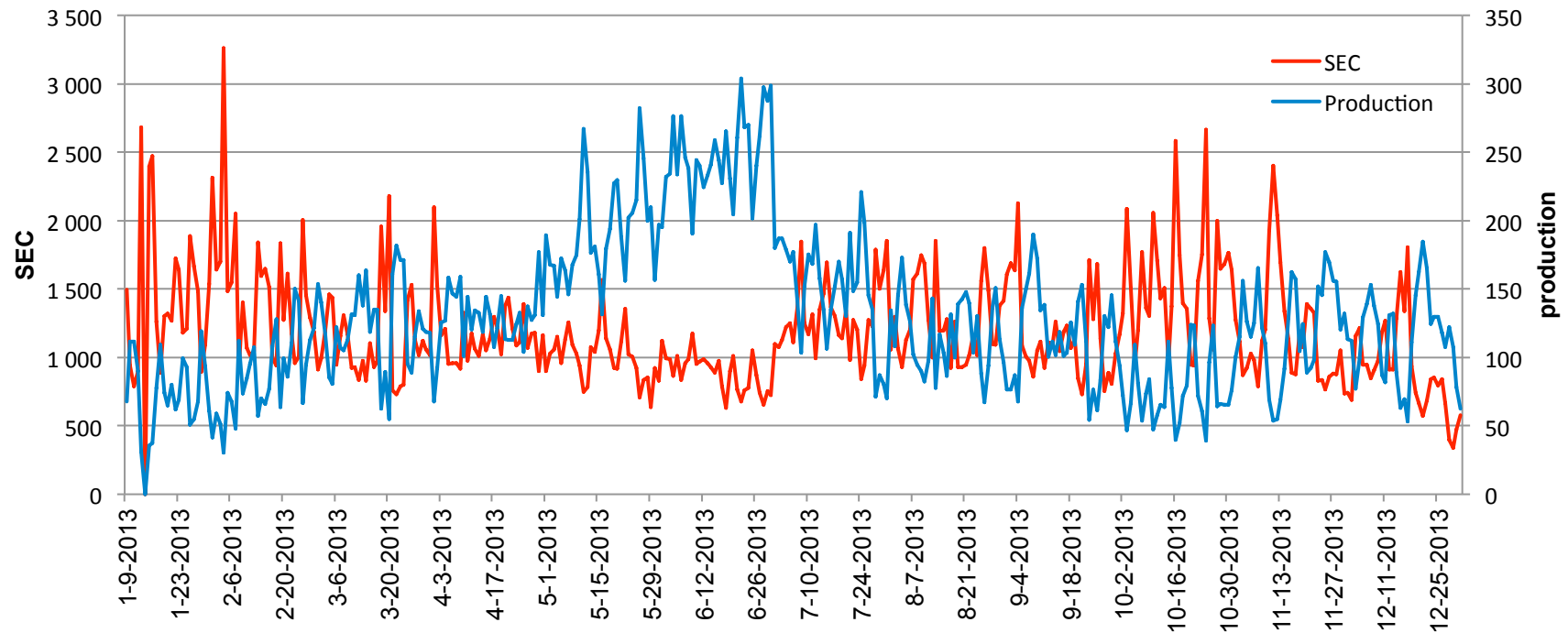


# Precision



# Is it a reason or an excuse?

*\*Brewing industry*



...When **production** goes **UP**, **SEC** goes **DOWN**

...When **production** goes **DOWN**, **SEC** goes **UP**

# Some final thoughts

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1. *Absolute consumption* is useful....

...BUT NOT IN ENERGY PERFORMANCE MEASUREMENT

2. *SEC* can be useful...

...BUT NOT IN ENERGY PERFORMANCE MEASUREMENT

3. *Statistical analyses* are the most precise way of measuring EnP

4. *SEC is still used all around the world to measure EnP...*

...HOW CAN WE HELP TO **CHANGE** THAT?