

OCTOBER 24, 2023

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# Slash Energy Costs & Carbon Footprint with AVEVA's Cloud-based Energy Monitoring System

Eric van Nispen, Analytics for Industry

**AVEVA**



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## Eric van Nispen

Director

- Analytics for Industry
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"AS THE PLANT MANAGER OF A LEADING MANUFACTURING FACILITY, SUSTAINABILITY HAS ALWAYS BEEN OUR GUIDING STAR. YET, NAVIGATING THE PATH TO GENUINE SUSTAINABILITY WAS CHALLENGING DUE TO THE ABSENCE OF DETAILED INSIGHTS INTO OUR ENERGY CONSUMPTION. THAT WAS UNTIL WE DISCOVERED THE EMS<sup>4M</sup> BUILT BY ANALYTICS FOR INDUSTRY. HOUSED ON THE RELIABLE MICROSOFT'S AZURE PLATFORM AND USING PROVEN TECHNOLOGY FROM AVEVA, EMS<sup>4M</sup> WAS UP AND RUNNING IN JUST 5 WORKING DAYS, OFFERING US INTRICATE DATA ON OUR WAGES (WATER, AIR, GAS, ELECTRICITY, AND STEAM) USAGE. THE DATA WAS METICULOUSLY SEGMENTED, ALLOWING US TO VIEW CONSUMPTION PER FACILITY, LINE, ASSET, AND EVEN DOWN TO INDIVIDUAL BATCHES AND PRODUCT. THE BRILLIANCE OF EMS<sup>4M</sup> LIES IN ITS DUAL DASHBOARD FEATURE. WHILE THE DASHBOARD PINPOINTED POTENTIAL SAVINGS, IT ALSO SHOWCASED THE TANGIBLE SAVINGS POST-IMPLEMENTATION. THESE DASHBOARDS BECAME OUR STRATEGIC TOOLS, ENABLING US TO DISCERN WHICH SUSTAINABILITY PROJECTS WERE CRUCIAL AND WHICH COULD BE SET ASIDE. THIS DATA-DRIVEN APPROACH ENSURED OUR RESOURCES WERE ALLOCATED EFFECTIVELY AND EFFICIENTLY. THE RESULTS WERE NOTHING SHORT OF TRANSFORMATIVE. WE WITNESSED SUBSTANTIAL ENERGY SAVINGS AND A MARKED REDUCTION IN OPERATIONAL COSTS. MOREOVER, OUR CARBON FOOTPRINT DIMINISHED SIGNIFICANTLY. BUT HERE'S THE CLINCHER: BASED ON THE INSIGHTS AND THE SUBSEQUENT IMPROVEMENTS WE MADE, WE ESTIMATE THE ROI OF THE EMS<sup>4M</sup> SYSTEM TO BE A MERE 3-4 MONTHS. AN INVESTMENT THAT NOT ONLY PAYS FOR ITSELF RAPIDLY BUT CONTINUES TO YIELD BENEFITS LONG AFTER. TODAY, EMS<sup>4M</sup> ISN'T JUST A MONITORING TOOL FOR US; IT'S AN ESSENTIAL COMPASS, GUIDING OUR SUSTAINABILITY JOURNEY WITH PRECISION AND CLARITY. WITH IT, WE'RE NOT ONLY ENVISIONING A GREENER FUTURE BUT ACTIVELY CRAFTING IT."



AI-GENERATED VOICE-OVER READING A VERIFIED CUSTOMER TESTIMONIAL FOR A COMPANY UTILIZING ANALYTICS FOR INDUSTRY'S EMS<sup>4M</sup>  
AI TECHNOLOGY EMPLOYED: HEYGEN



**ANALYTICS**  
FOR INDUSTRY





SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S  
CLOUD-TECHNOLOGY BASED ENERGY MONITORING SYSTEM.







## ANALYTICS FOR INDUSTRY

Analytics For Industry (AFI) serves customers worldwide to create **actionable business value** from their **manufacturing data** by delivering software products and services.

Bridging the gap between **operational technology** and **data science**, Analytics for Industry uses proven software from global leading technology companies like **AVEVA** and **Microsoft**.





OUR VISION

AUTONOMOUS OPERATIONS WHERE PEOPLE ARE INFORMED  
AND SYNCHRONIZED WITH THEIR PROCESSES.



**ANALYTICS**  
FOR INDUSTRY



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY



1

WHO

2

WHY

3

WHAT

4

HOW

5

WHEN



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY



1

WHO

ORGANIZATIONS THAT WANT TO: DEFINE, MEASURE AND ACHIEVE THEIR SUSTAINABILITY GOALS AND LIVE UP TO THE PARIS AGREEMENT



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

UNITED NATIONS  
PARIS CLIMATE  
AGREEMENT  
SIGNING CEREMONY  
— 22 APRIL 2016 —



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED ENERGY MONITORING SYSTEM.



ANALYTICS  
FOR INDUSTRY



2

WHY

## WHY SHOULD YOU CARE?

- BE A RESPONSIBLE & SUSTAINABLE COMPANY
- SPEND YOUR ENERGY BASED SUSTAINABILITY INVESTMENTS WISELY.
- SAVE MONEY BY REDUCING YOUR ENERGY COSTS.
- MAKE MONEY BY BEING (MORE) COMPETITIVE.





3

WHAT



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).

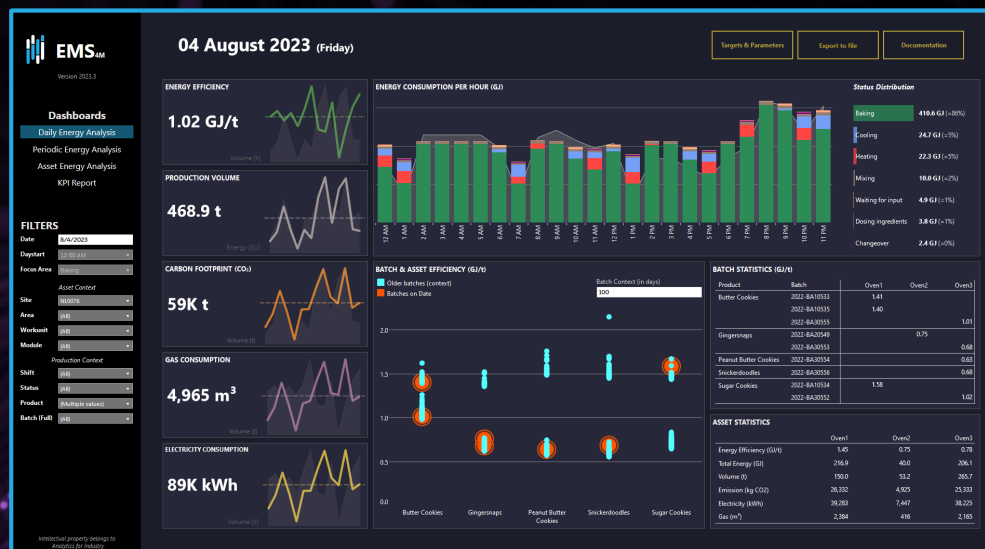


**ANALYTICS**  
FOR INDUSTRY



3

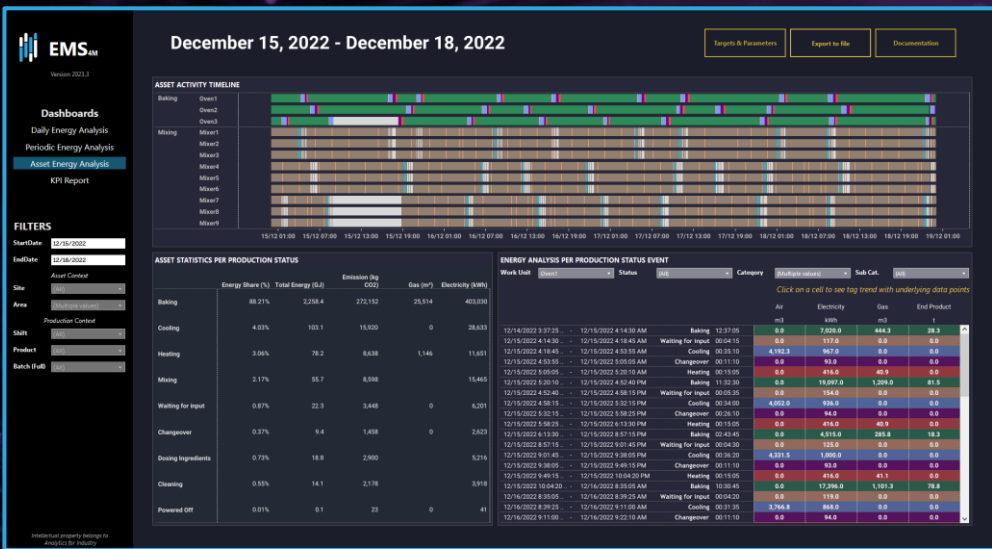
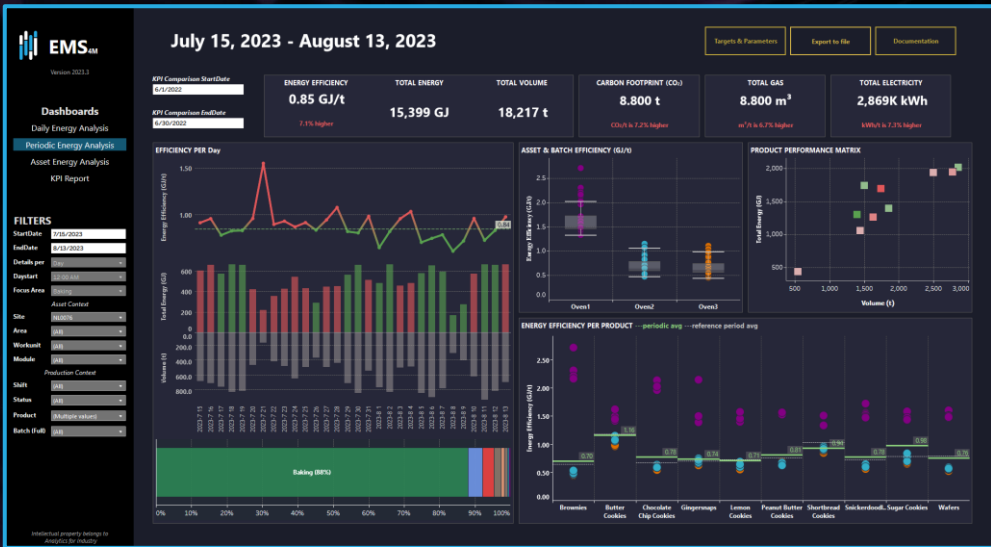
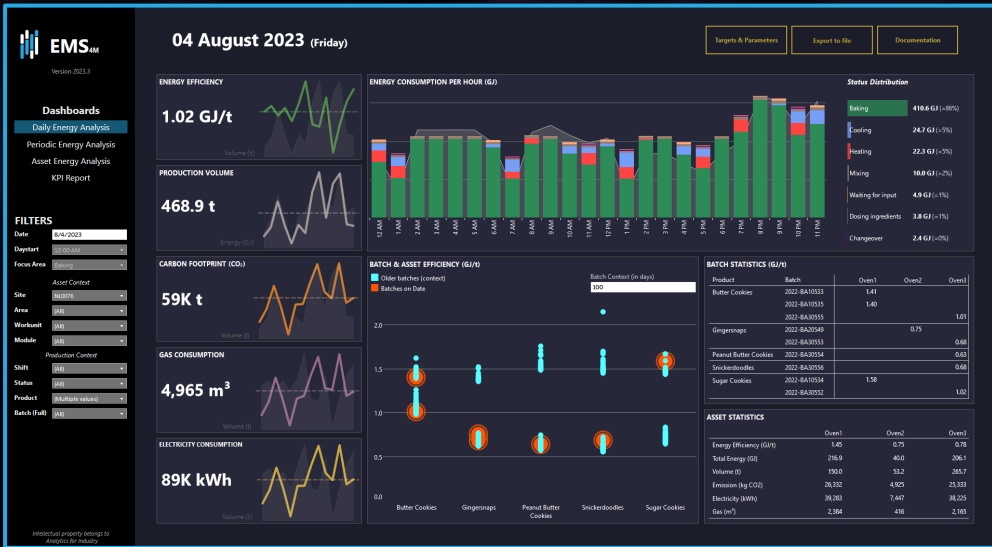
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SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED ENERGY MONITORING SYSTEM.



3



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED ENERGY MONITORING SYSTEM.

ANALYTICS FOR INDUSTRY

## Dashboards

Daily Energy Analysis

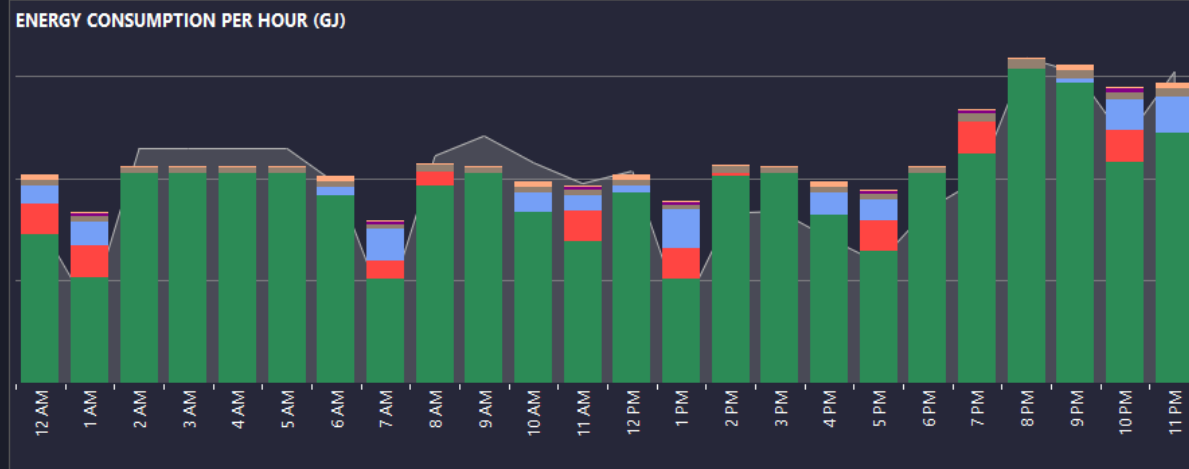
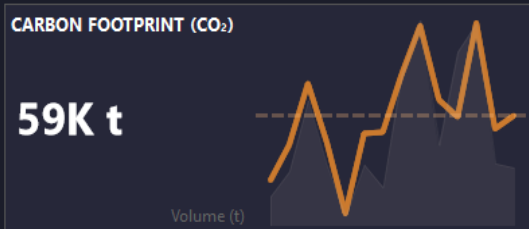
Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- Date:
- Daystart:
- Focus Area:
- Asset Context
- Site:
- Area:
- Workunit:
- Module:
- Production Context
- Shift:
- Status:
- Product:
- Batch (Full):



### Status Distribution

Baking	410.6 GJ (=86%)
Cooling	24.7 GJ (=5%)
Heating	22.3 GJ (=5%)
Mixing	10.0 GJ (=2%)
Waiting for input	4.9 GJ (=1%)
Dosing ingredients	3.8 GJ (=1%)
Changeover	2.4 GJ (=0%)



### BATCH STATISTICS (GJ/t)

Product	Batch	Oven1	Oven2	Oven3
Butter Cookies	2022-BA10533	1.41		
	2022-BA10535	1.40		
	2022-BA30555			1.01
Gingersnaps	2022-BA20549		0.75	
	2022-BA30553			0.68
Peanut Butter Cookies	2022-BA30554			0.63
Snickerdoodles	2022-BA30556			0.68
Sugar Cookies	2022-BA10534	1.58		
	2022-BA30552			1.02

### ASSET STATISTICS

	Oven1	Oven2	Oven3
Energy Efficiency (GJ/t)	1.45	0.75	0.78
Total Energy (GJ)	216.9	40.0	206.1
Volume (t)	150.0	53.2	265.7
Emission (kg CO <sub>2</sub> )	26,332	4,925	25,333
Electricity (kWh)	39,283	7,447	38,225
Gas (m <sup>3</sup> )	2,384	416	2,165



Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

FILTERS

Date: 8/4/2023

Daystart: 12:00 AM

Focus Area: Baking

Asset Context

Site: NL0076

Area: (All)

Workunit: (All)

Module: (All)

Production Context

Shift: (All)

Status: (All)

Product: (Multiple values)

Batch (Full): (All)



Dashboards

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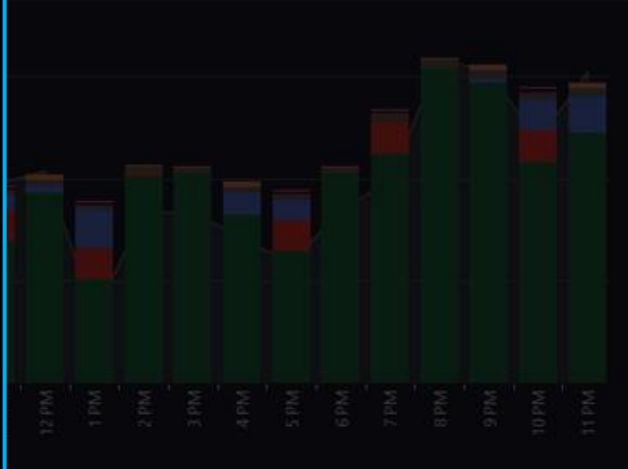
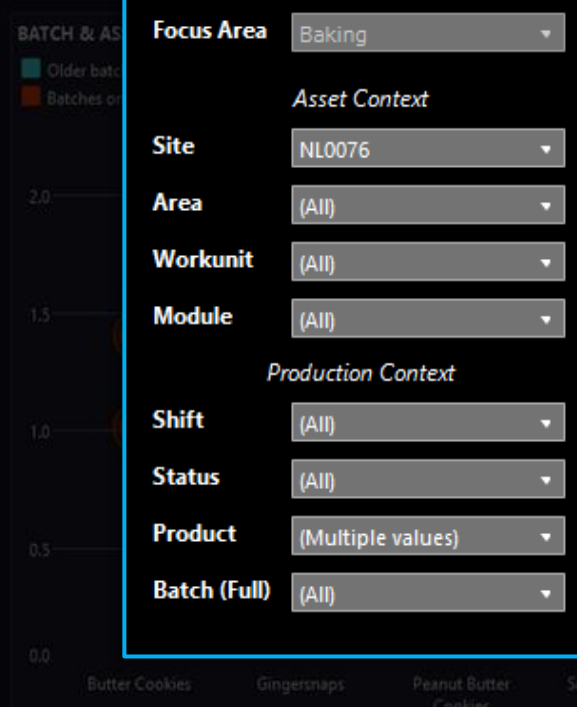
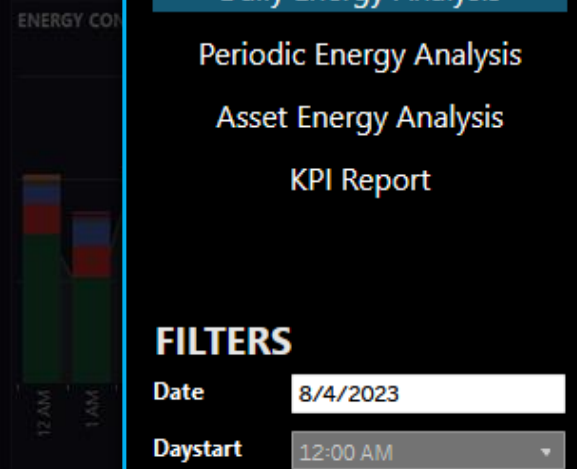
Production Context

Shift: (All)

Status: (All)

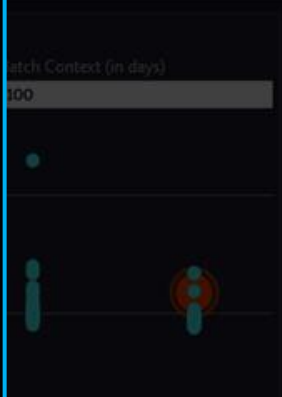
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	2022-BA10535	1.40		
Gingersnaps	2022-BA30555			1.01
	2022-BA20548		0.75	
Peanut Butter Cookies	2022-BA30553			0.68
Snickerdoodles	2022-BA30554			0.63
Sugar Cookies	2022-BA30556			0.68
	2022-BA10534	1.58		
	2022-BA30552			1.02

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## Dashboards

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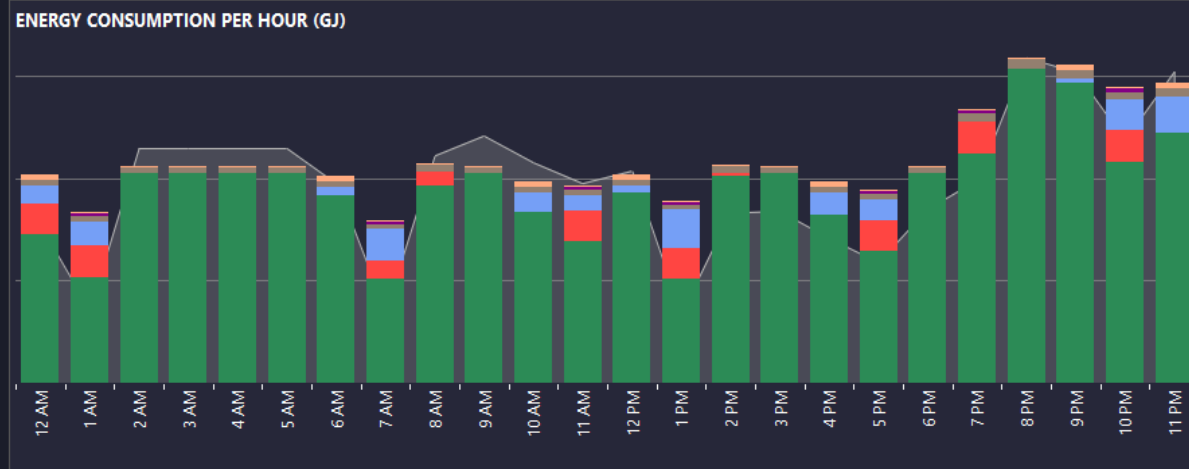
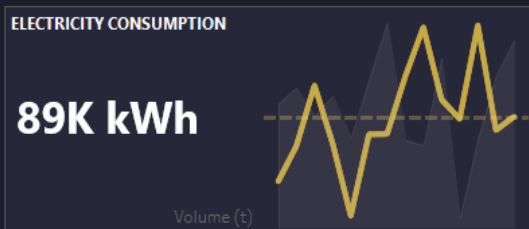
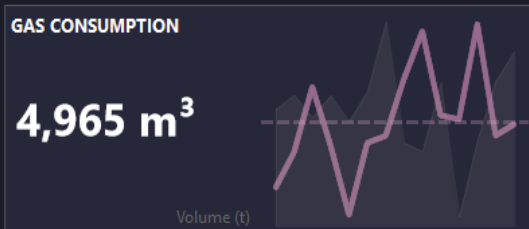
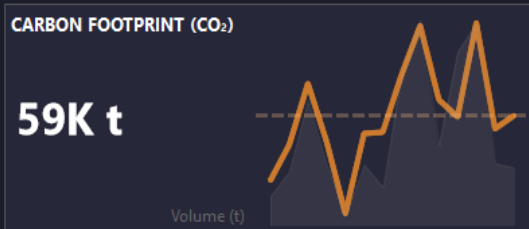
Periodic Energy Analysis

Asset Energy Analysis

KPI Report

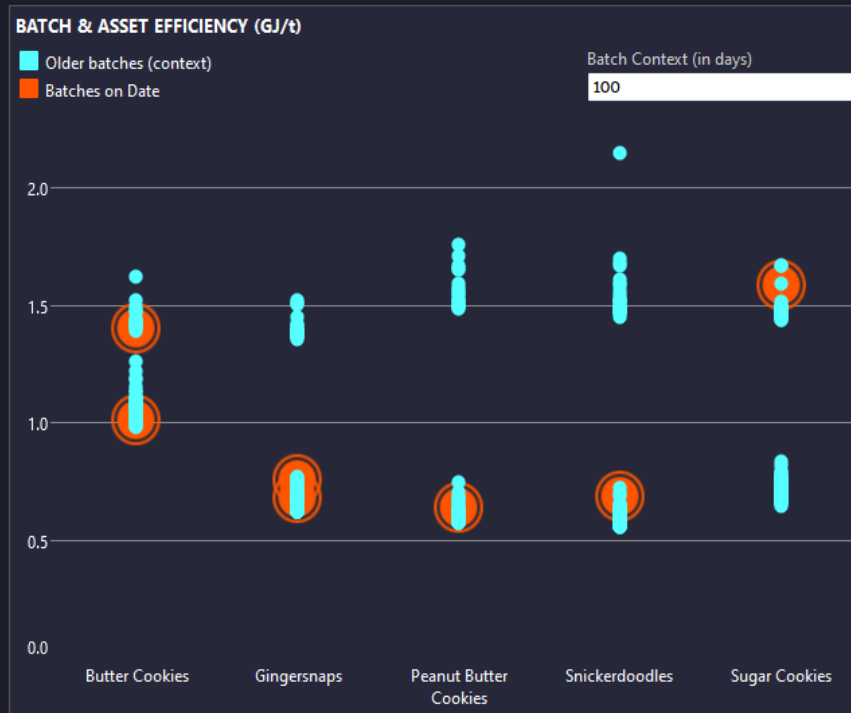
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**Dashboards**

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Periodic Energy Analysis

Asset Energy Analysis

KPI Report

**FILTERS**

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Asset Context

Site: NL0076

Area: (All)

Workunit: (All)

Module: (All)

Production Context

Shift: (All)

Status: (All)

Product: (Multiple values)

Batch (Full): (All)



**ENERGY EFFICIENCY**

1.02 GJ/t

Volume (t)

**PRODUCTION VOLUME**

468.9 t

Energy (GJ)

**CARBON FOOTPRINT (CO<sub>2</sub>)**

59K t

Volume (t)

**GAS CONSUMPTION**

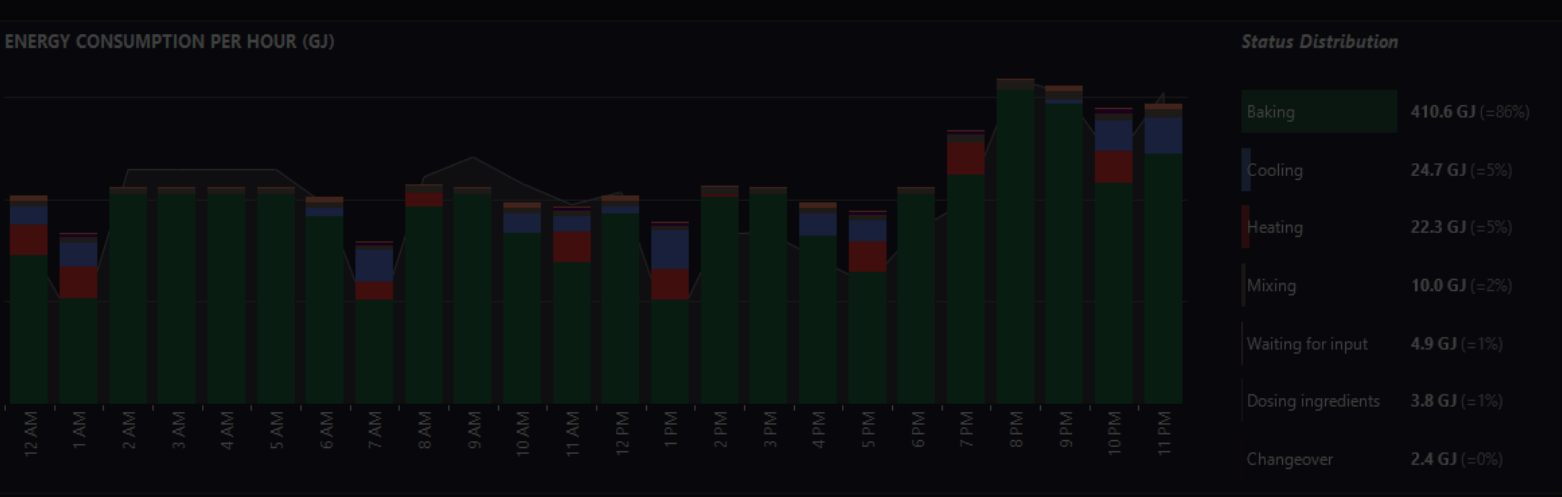
4,965 m<sup>3</sup>

Volume (t)

**ELECTRICITY CONSUMPTION**

89K kWh

Volume (t)



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Daily Energy Analysis

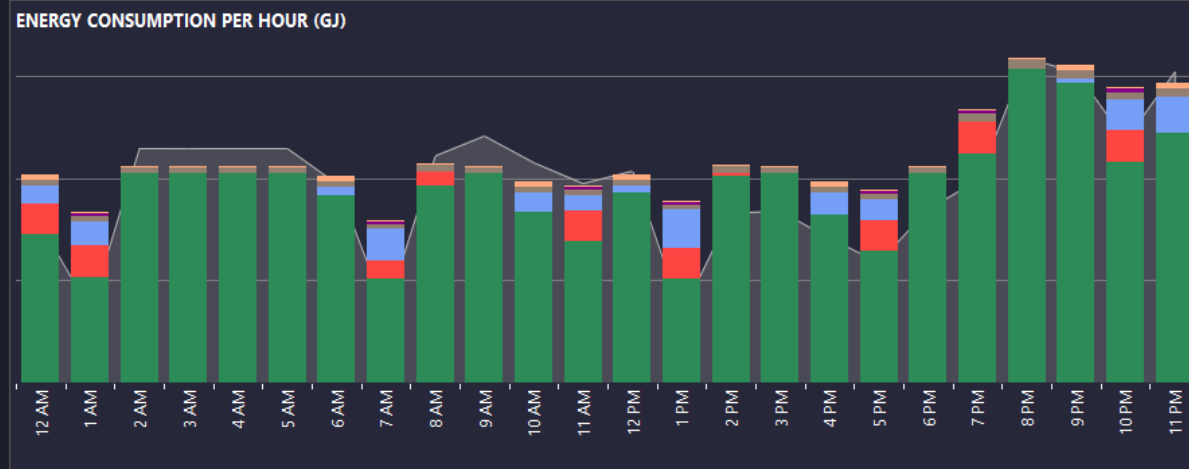
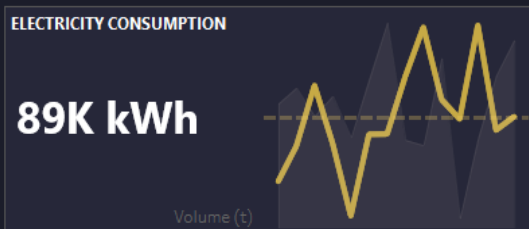
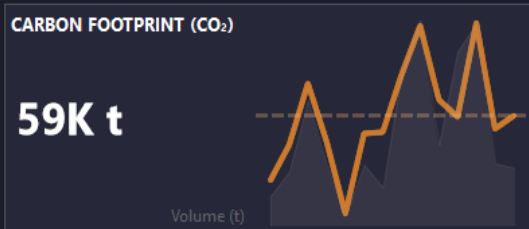
Periodic Energy Analysis

Asset Energy Analysis

KPI Report

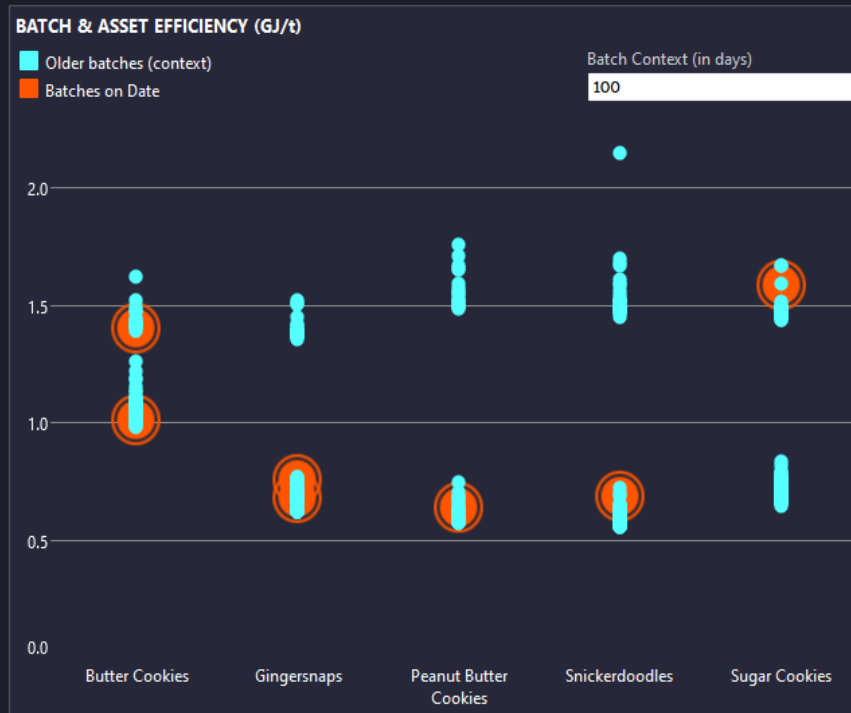
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Dashboards

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KPI Report

FILTERS

Date: 8/4/2023

Daystart: 12:00 AM

Focus Area: Baking

Asset Context

Site: NL0076

Area: (All)

Workunit: (All)

Module: (All)

Production Context

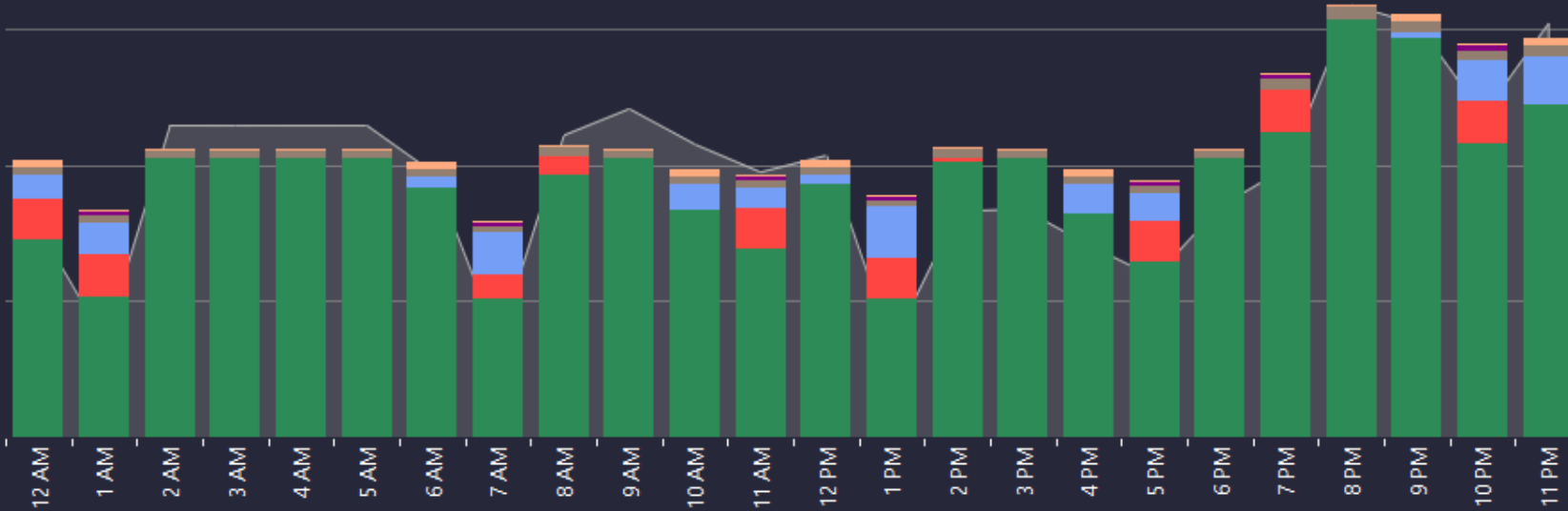
Shift: (All)

Status: (All)

Product: (Multiple values)

Batch (Full): (All)

ENERGY CONSUMPTION PER HOUR (GJ)



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GAS CONSUMPTION

4,965 m<sup>3</sup>

ELECTRICITY CONSUMPTION

89K kWh



Gingersnaps	2022-BA20343	0.73	0.68
Peanut Butter Cookies	2022-BA30554		0.63
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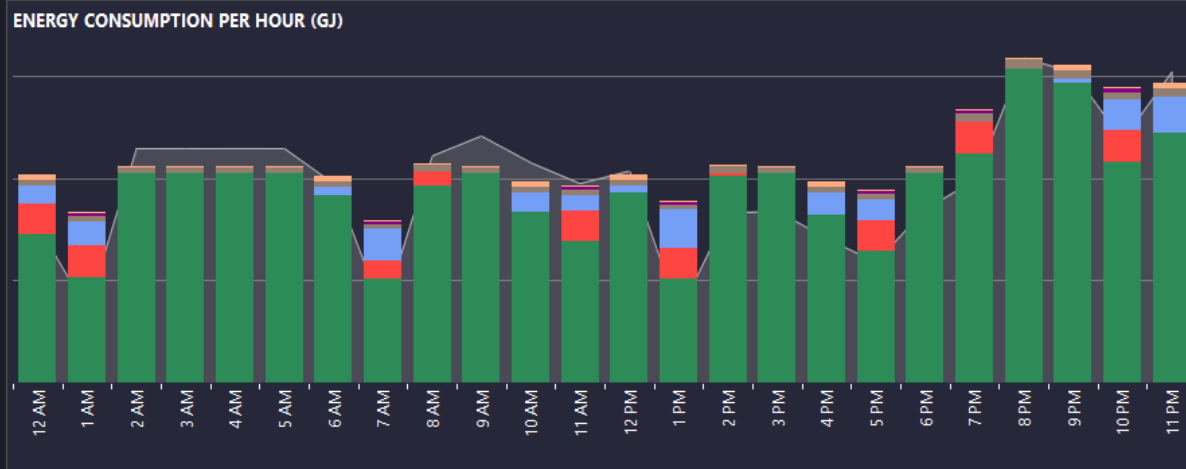
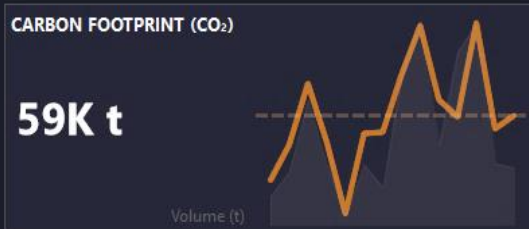
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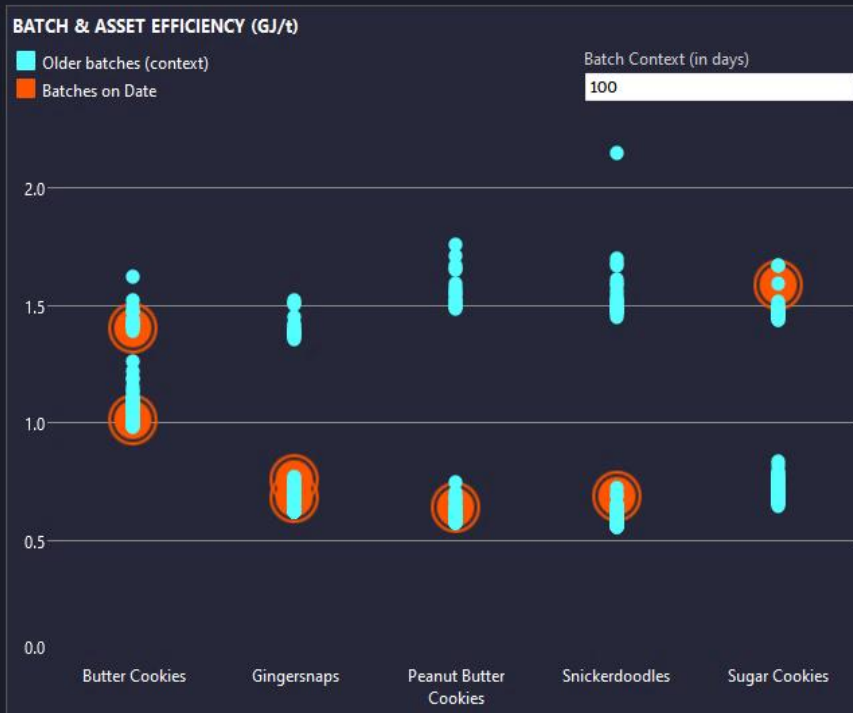
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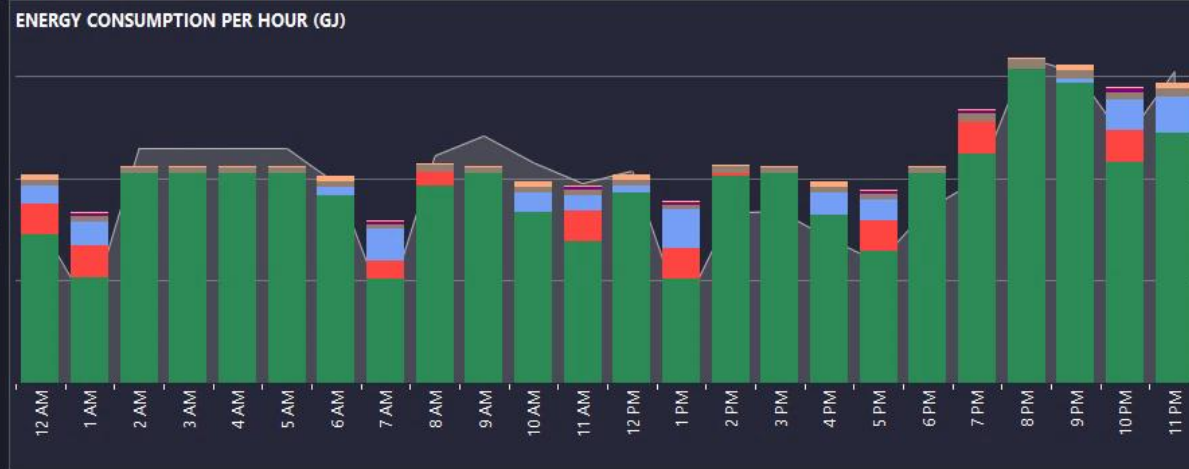
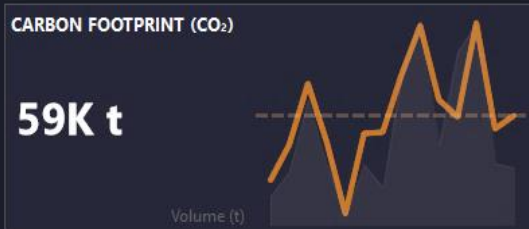
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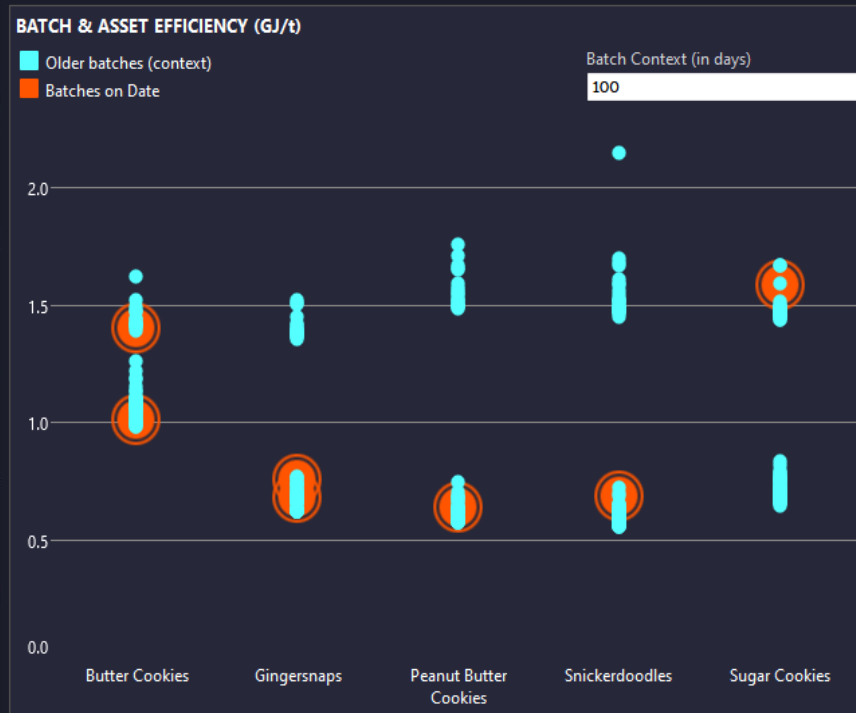
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Snickerdoodles	2022-BA30556			0.68
Sugar Cookies	2022-BA10534	1.58		
	2022-BA30552			1.02

### ASSET STATISTICS

	Oven1	Oven2	Oven3
Energy Efficiency (GJ/t)	1.45	0.75	0.78
Total Energy (GJ)	216.9	40.0	206.1
Volume (t)	150.0	53.2	265.7
Emission (kg CO <sub>2</sub> )	26,332	4,925	25,333
Electricity (kWh)	39,283	7,447	38,225
Gas (m <sup>3</sup> )	2,384	416	2,165



Dashboards

Daily Energy Analysis

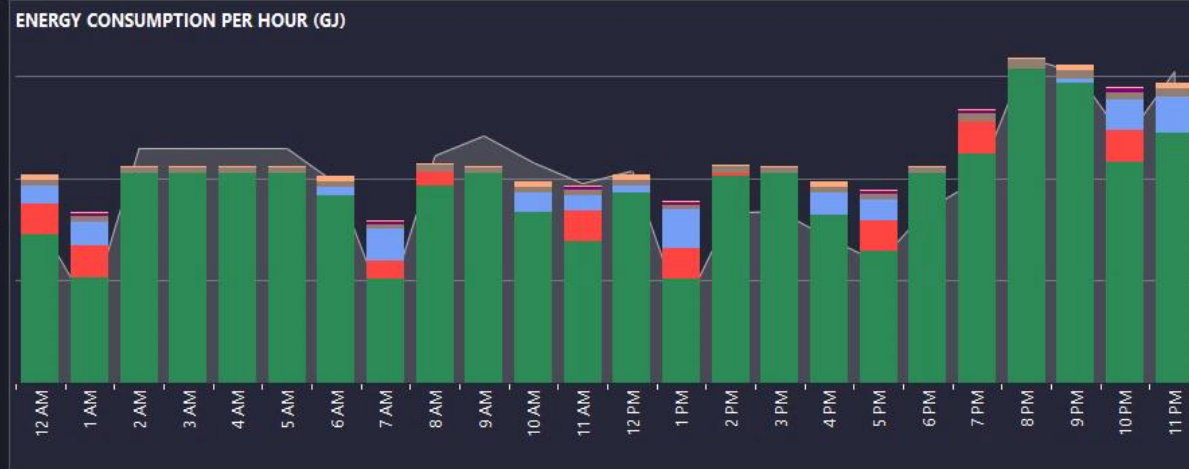
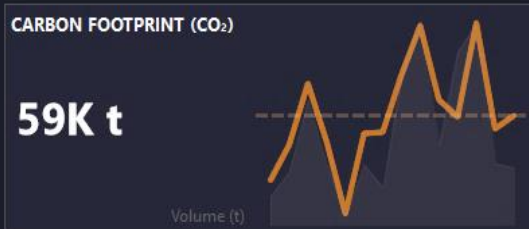
Periodic Energy Analysis

Asset Energy Analysis

KPI Report

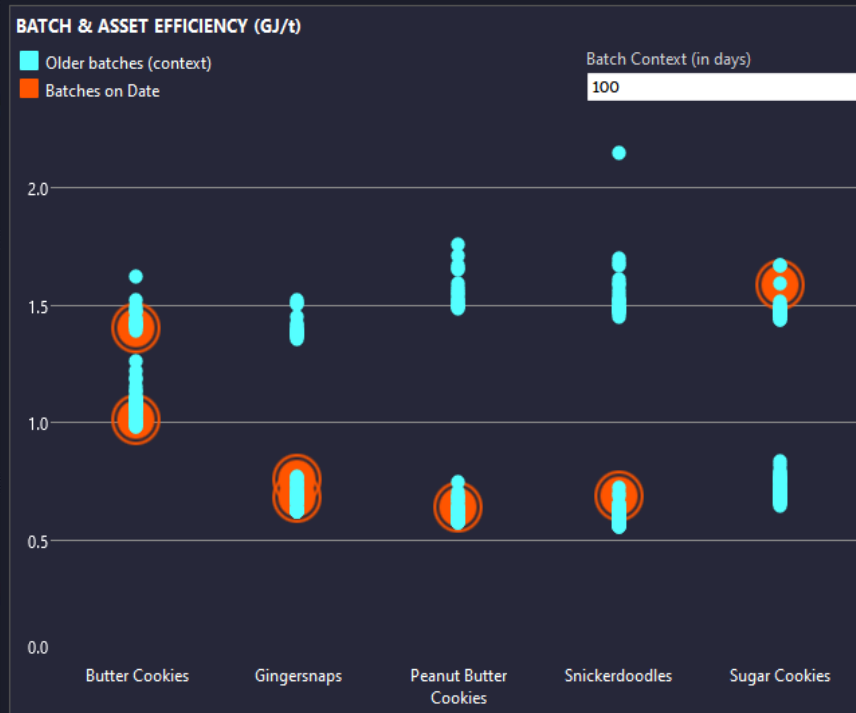
FILTERS

- Date: 8/4/2023
- Daystart: 12:00 AM
- Focus Area: Baking
- Asset Context
- Site: NL0076
- Area: (All)
- Workunit: (All)
- Module: (All)
- Production Context
- Shift: (All)
- Status: (All)
- Product: (Multiple values)
- Batch (Full): (All)



### Status Distribution

Baking	410.6 GJ (=86%)
Cooling	24.7 GJ (=5%)
Heating	22.3 GJ (=5%)
Mixing	10.0 GJ (=2%)
Waiting for input	4.9 GJ (=1%)
Dosing ingredients	3.8 GJ (=1%)
Changeover	2.4 GJ (=0%)



### BATCH STATISTICS (GJ/t)

Product	Batch	Oven1	Oven2	Oven3
Butter Cookies	2022-BA10533	1.41		
	2022-BA10535	1.40		
	2022-BA30555			1.01
Gingersnaps	2022-BA20549		0.75	
	2022-BA30553			0.68
Peanut Butter Cookies	2022-BA30554			0.63
Snickerdoodles	2022-BA30556			0.68
Sugar Cookies	2022-BA10534	1.58		
	2022-BA30552			1.02

### ASSET STATISTICS

	Oven1	Oven2	Oven3
Energy Efficiency (GJ/t)	1.45	0.75	0.78
Total Energy (GJ)	216.9	40.0	206.1
Volume (t)	150.0	53.2	265.7
Emission (kg CO <sub>2</sub> )	26,332	4,925	25,333
Electricity (kWh)	39,283	7,447	38,225
Gas (m <sup>3</sup> )	2,384	416	2,165



**KPI Comparison StartDate**  
6/1/2022

**KPI Comparison EndDate**  
6/30/2022

<b>ENERGY EFFICIENCY</b> <b>0.85 GJ/t</b> <i>7.1% higher</i>	<b>TOTAL ENERGY</b> <b>15,399 GJ</b>	<b>TOTAL VOLUME</b> <b>18,217 t</b>
--	---	--

**CARBON FOOTPRINT (CO<sub>2</sub>)**  
**8.800 t**  
*CO<sub>2</sub>/t is 7.2% higher*

**TOTAL GAS**  
**8.800 m<sup>3</sup>**  
*m<sup>3</sup>/t is 6.7% higher*

**TOTAL ELECTRICITY**  
**2,869K kWh**  
*kWh/t is 7.3% higher*

## Dashboards

Daily Energy Analysis

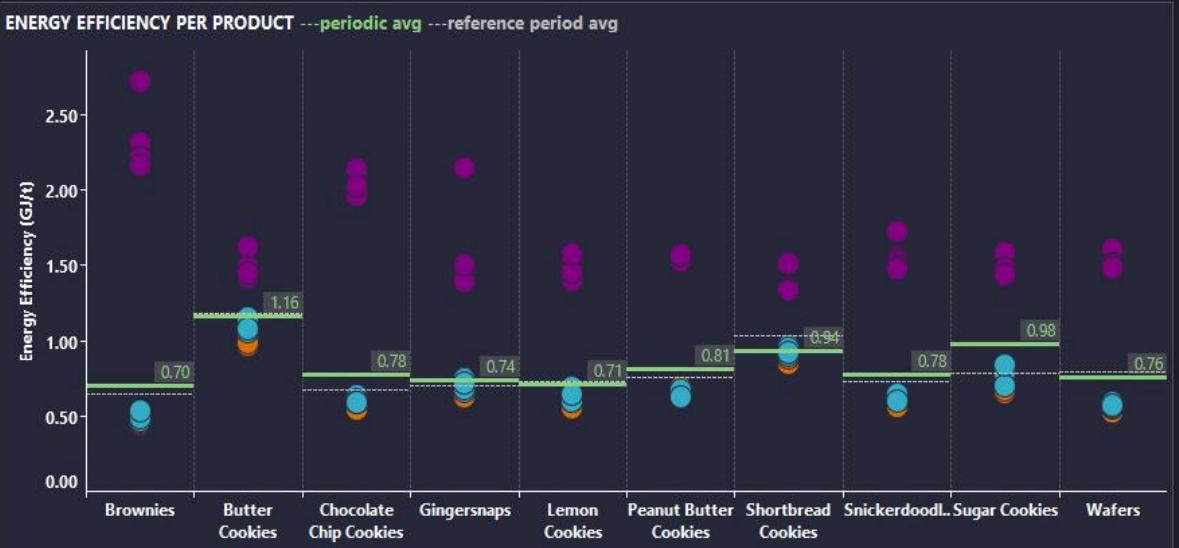
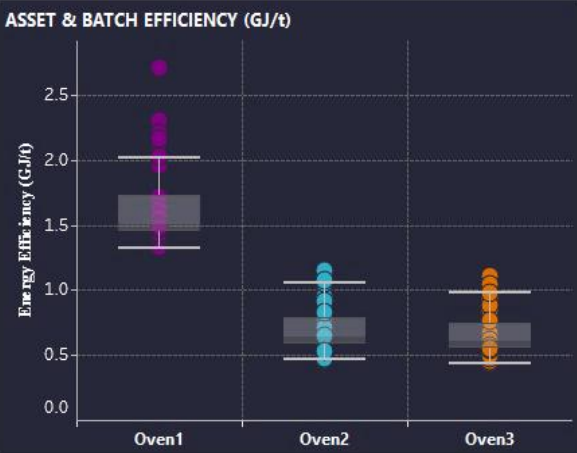
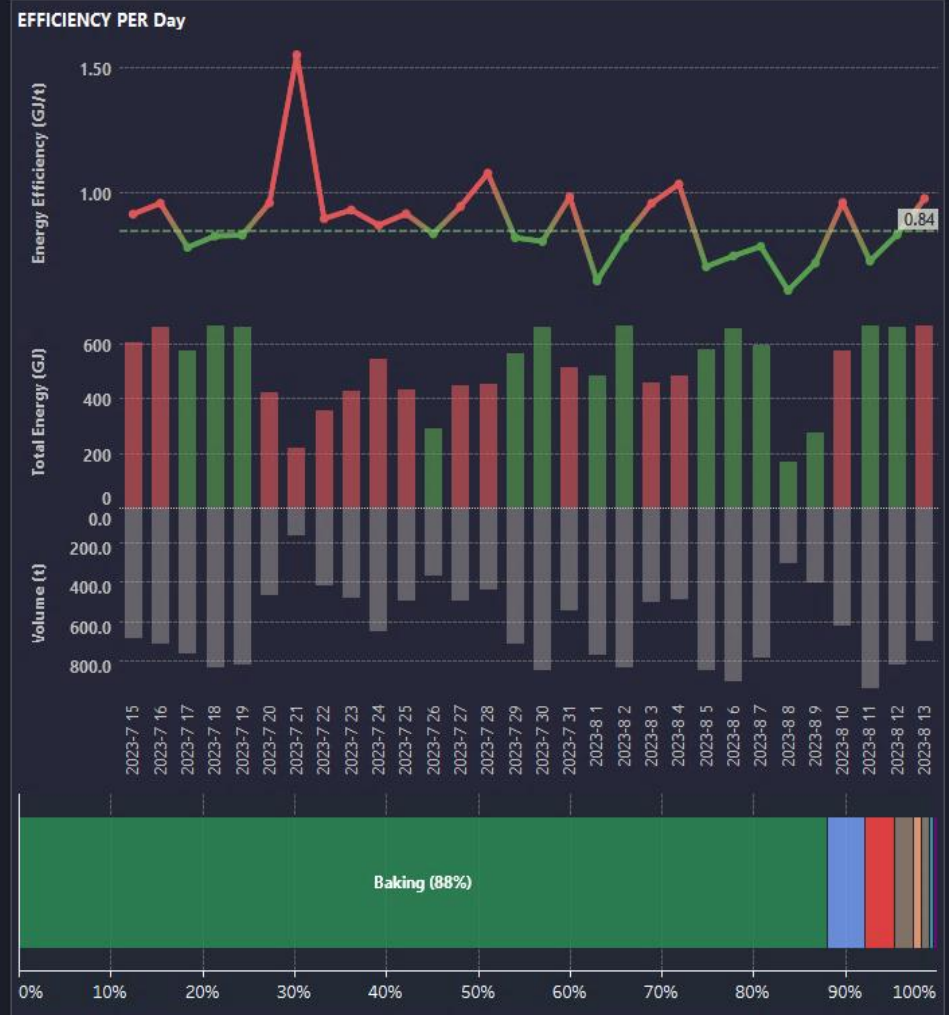
Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- StartDate:
- EndDate:
- Details per:
- Daystart:
- Focus Area:
- Asset Context
- Site:
- Area:
- Workunit:
- Module:
- Production Context
- Shift:
- Status:
- Product:
- Batch (Full):



## Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

### FILTERS

**StartDate**   
**EndDate**   
**Details per**   
**Daystart**   
**Focus Area**   
**Asset Context**  
**Site**   
**Area**   
**Workunit**   
**Module**   
**Production Context**  
**Shift**   
**Status**   
**Product**   
**Batch (Full)**



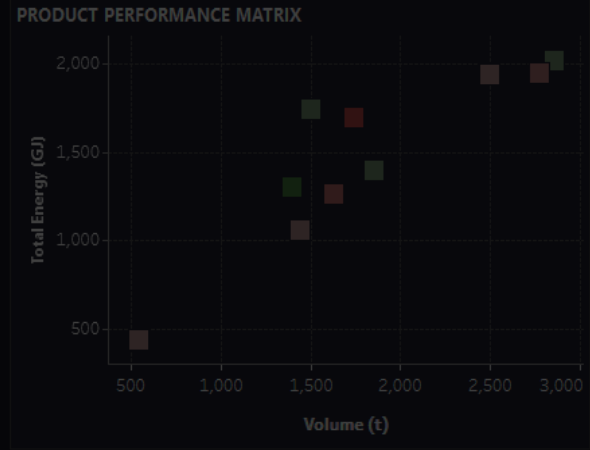
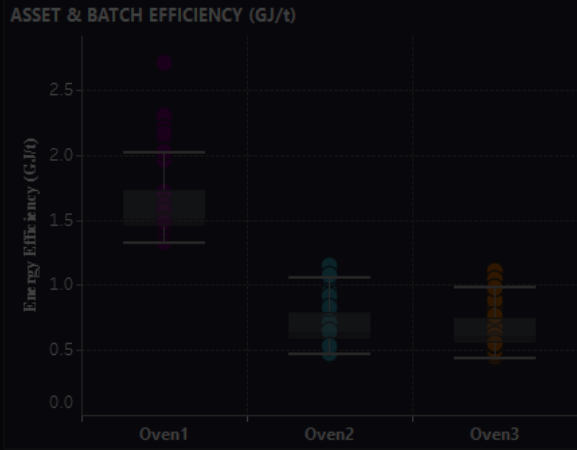
**KPI Comparison StartDate**  
  
**KPI Comparison EndDate**

<b>ENERGY EFFICIENCY</b> <b>0.85 GJ/t</b> <i>7.1% higher</i>	<b>TOTAL ENERGY</b> <b>15,399 GJ</b>	<b>TOTAL VOLUME</b> <b>18,217 t</b>
--	---	--

**CARBON FOOTPRINT (CO<sub>2</sub>)**  
**8.800 t**  
*CO<sub>2</sub>/t is 7.2% higher*

**TOTAL GAS**  
**8.800 m<sup>3</sup>**  
*m<sup>3</sup>/t is 6.7% higher*

**TOTAL ELECTRICITY**  
**2,869K kWh**  
*kWh/t is 7.3% higher*



## Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- StartDate
- EndDate
- Details per
- Daystart
- Focus Area
- Asset Context
- Site
- Area
- Workunit
- Module
- Production Context
- Shift
- Status
- Product
- Batch (Full)



KPI Comparison StartDate

KPI Comparison EndDate

<b>ENERGY EFFICIENCY</b> <b>0.85 GJ/t</b> <span style="color: red;">7.1% higher</span>	<b>TOTAL ENERGY</b> <b>15,399 GJ</b>	<b>TOTAL VOLUME</b> <b>18,217 t</b>
--	---	--

**CARBON FOOTPRINT (CO<sub>2</sub>)**

**8.800 t**

CO<sub>2</sub>/t is 7.2% higher

**TOTAL GAS**

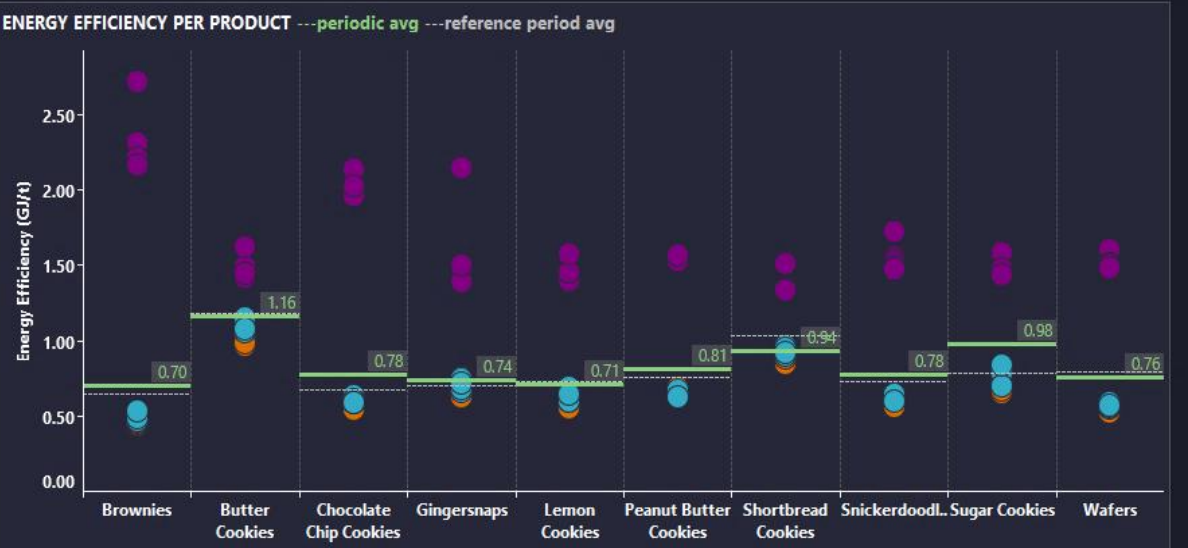
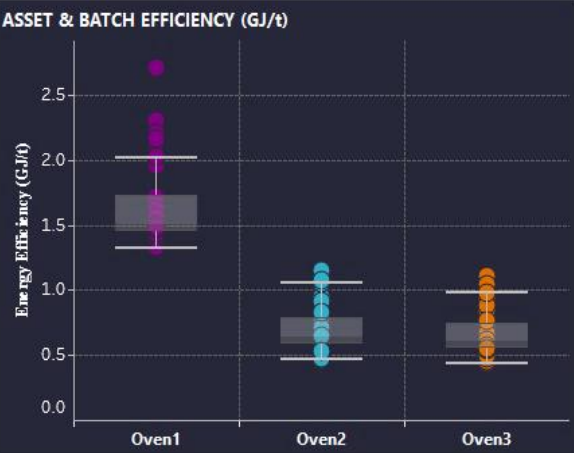
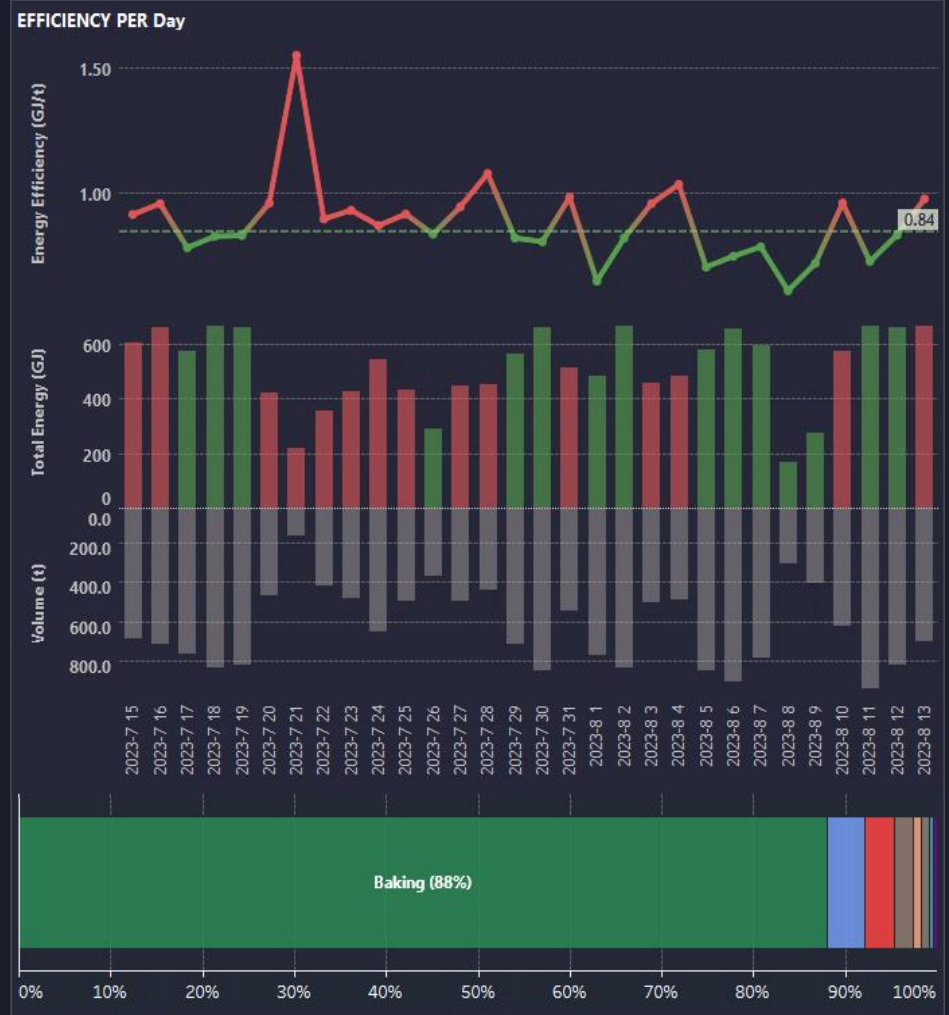
**8.800 m<sup>3</sup>**

m<sup>3</sup>/t is 6.7% higher

**TOTAL ELECTRICITY**

**2,869K kWh**

kWh/t is 7.3% higher





Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

FILTERS

StartDate: 7/15/2023

EndDate: 8/13/2023

Details per: Day

Daystart: 12:00 AM

Focus Area: Baking

Asset Context

Site: NL0076

Area: (All)

Workunit: (All)

Module: (All)

Production Context

Shift: (All)

Status: (All)

Product: (Multiple values)

Batch (Full): (All)



July 15, 2023 - August 13, 2023

KPI Comparison St

6/1/2022

KPI Comparison En

6/30/2022

EFFICIENCY PER

Energy Efficiency (GJ/t)

1.50

1.00

0.50

0.00

Volume (t)

600

400

200

0

0.0

200.0

400.0

600.0

800.0

2023-7-15

0%

10%

EFFICIENCY PER Day

Energy Efficiency (GJ/t)

1.50

1.00

Total Energy (GJ)

600

400

Volume (t)

200.0

400.0

600.0

800.0

2023-7-15

2023-7-16

2023-7-17

2023-7-18

2023-7-19

2023-7-20

2023-7-21

2023-7-22

2023-7-23

2023-7-24

2023-7-25

2023-7-26

2023-7-27

2023-7-28

2023-7-29

2023-7-30

2023-7-31

2023-8-1

2023-8-2

2023-8-3

2023-8-4

2023-8-5

2023-8-6

2023-8-7

2023-8-8

2023-8-9

2023-8-10

2023-8-11

2023-8-12

2023-8-13

Export to file

Documentation

TOTAL ELECTRICITY

2,869K kWh

kWh/t is 7.3% higher

PERFORMANCE MATRIX



Cookies Chip Cookies Cookies Cookies



## Dashboards

Daily Energy Analysis

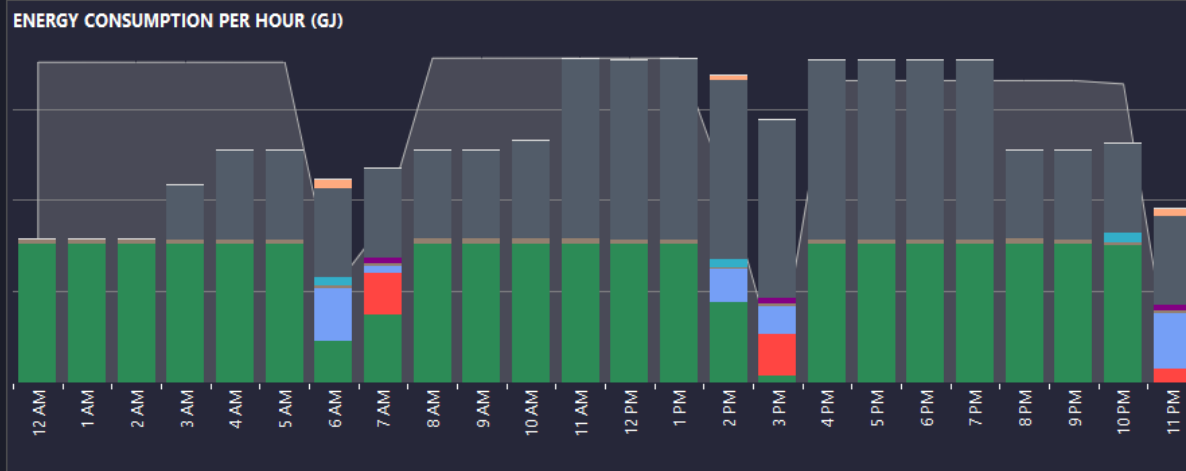
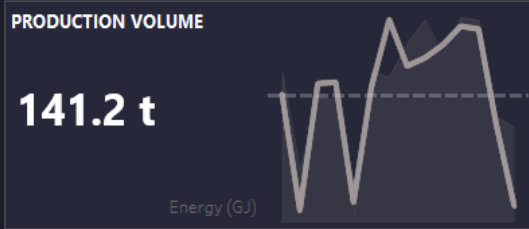
Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- Date:
- Daystart:
- Focus Area:
- Asset Context
- Site:
- Area:
- Workunit:
- Module:
- Production Context
- Shift:
- Status:
- Product:
- Batch (Full):



### Status Distribution

Baking	189.2 GJ (=48%)
Maintenance	177.3 GJ (=45%)
Cooling	12.0 GJ (=3%)
Heating	6.5 GJ (=2%)
Mixing	4.0 GJ (=1%)
Waiting for input	2.4 GJ (=1%)
Dosing ingredients	1.9 GJ (=0%)
Cleaning	1.8 GJ (=0%)
Changeover	1.0 GJ (=0%)
Powered Off	0.0 GJ (=0%)



### BATCH STATISTICS (GJ/t)

Product	Batch	Oven1
Butter Cookies	2022-BA10501	1.42
Lemon Cookies	2022-BA10502	1.45
Peanut Butter Cookies	2022-BA10503	1.56

### ASSET STATISTICS

	Oven1
Energy Efficiency (GJ/t)	1.49
Total Energy (GJ)	210.1
Volume (t)	141.2
Emission (kg CO <sub>2</sub> )	25,750
Electricity (kWh)	38,749
Gas (m <sup>3</sup> )	2,232

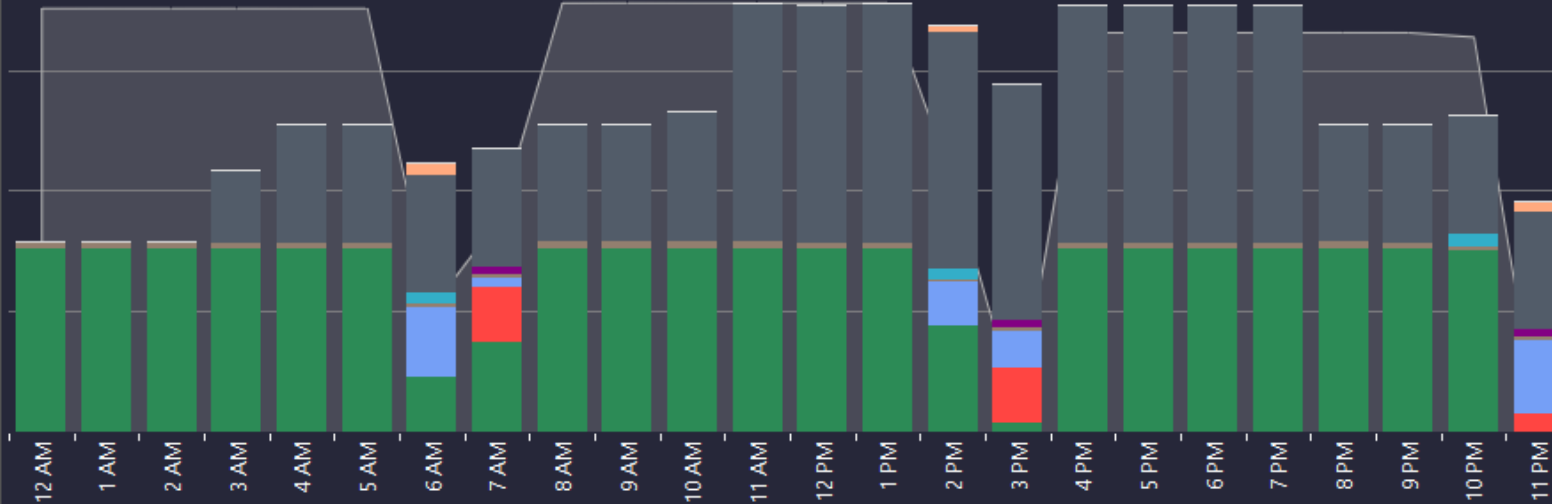
Dashboard

- Daily Energy Analysis
- Periodic Energy Analysis
- Asset Energy Analysis
- KPI Report

FILTERS

- Date: 7/21/2023
- Daystart: 12:00 AM
- Focus Area: Baking
- Asset Context: NL0076
- Area: (All)
- Workunit: (All)
- Module: (All)
- Production Context: (All)
- Shift: (All)
- Status: (All)
- Product: (All)
- Batch (Full): (All)

ENERGY CONSUMPTION PER HOUR (GJ)



Status Distribution

Baking	189.2 GJ (=48%)
Maintenance	177.3 GJ (=45%)
Cooling	12.0 GJ (=3%)
Heating	6.5 GJ (=2%)
Mixing	4.0 GJ (=1%)
Waiting for input	2.4 GJ (=1%)
Dosing ingredients	1.9 GJ (=0%)
Cleaning	1.8 GJ (=0%)
Changeover	1.0 GJ (=0%)
Powered Off	0.0 GJ (=0%)

189.2 GJ (=48%)
177.3 GJ (=45%)
12.0 GJ (=3%)
6.5 GJ (=2%)
4.0 GJ (=1%)
2.4 GJ (=1%)
1.9 GJ (=0%)
1.8 GJ (=0%)
1.0 GJ (=0%)
0.0 GJ (=0%)



Lemon Cookies	2022-BA10502	1.45
Peanut Butter Cookies	2022-BA10503	1.56

ASSET STATISTICS

Energy Efficiency (GJ/t)	1.49
Total Energy (GJ)	210.1
Volume (t)	141.2
Emission (kg CO2)	25,750
Electricity (kWh)	38,749
Gas (m³)	2,232



## Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- StartDate
- EndDate
- Details per
- Daystart
- Focus Area
- Asset Context
- Site
- Area
- Workunit
- Module
- Production Context
- Shift
- Status
- Product
- Batch (Full)



KPI Comparison StartDate

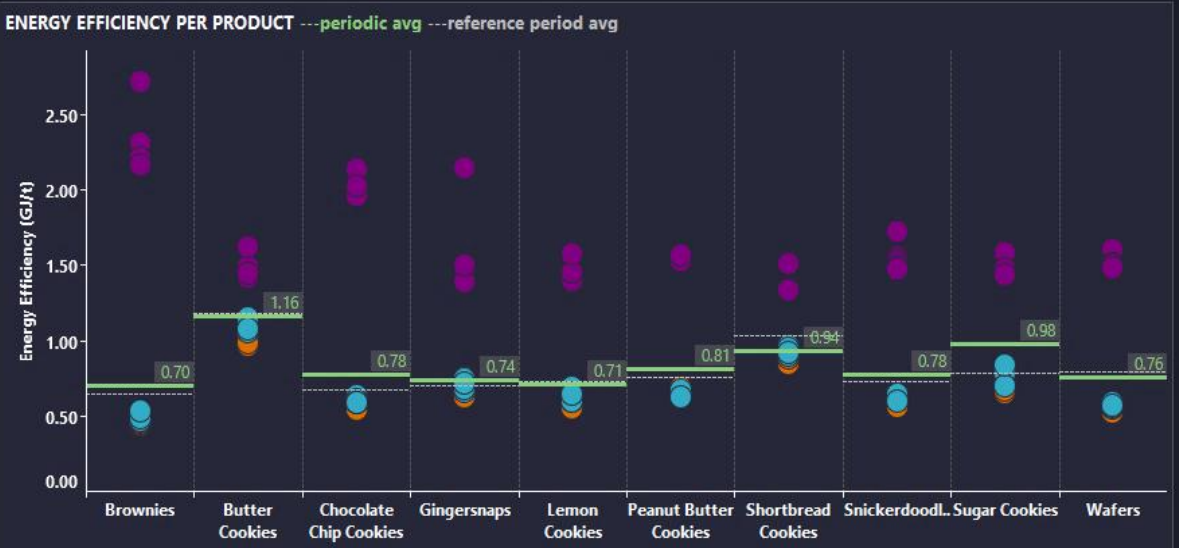
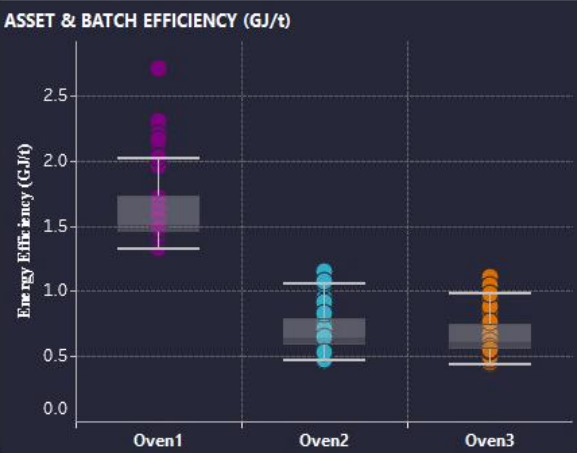
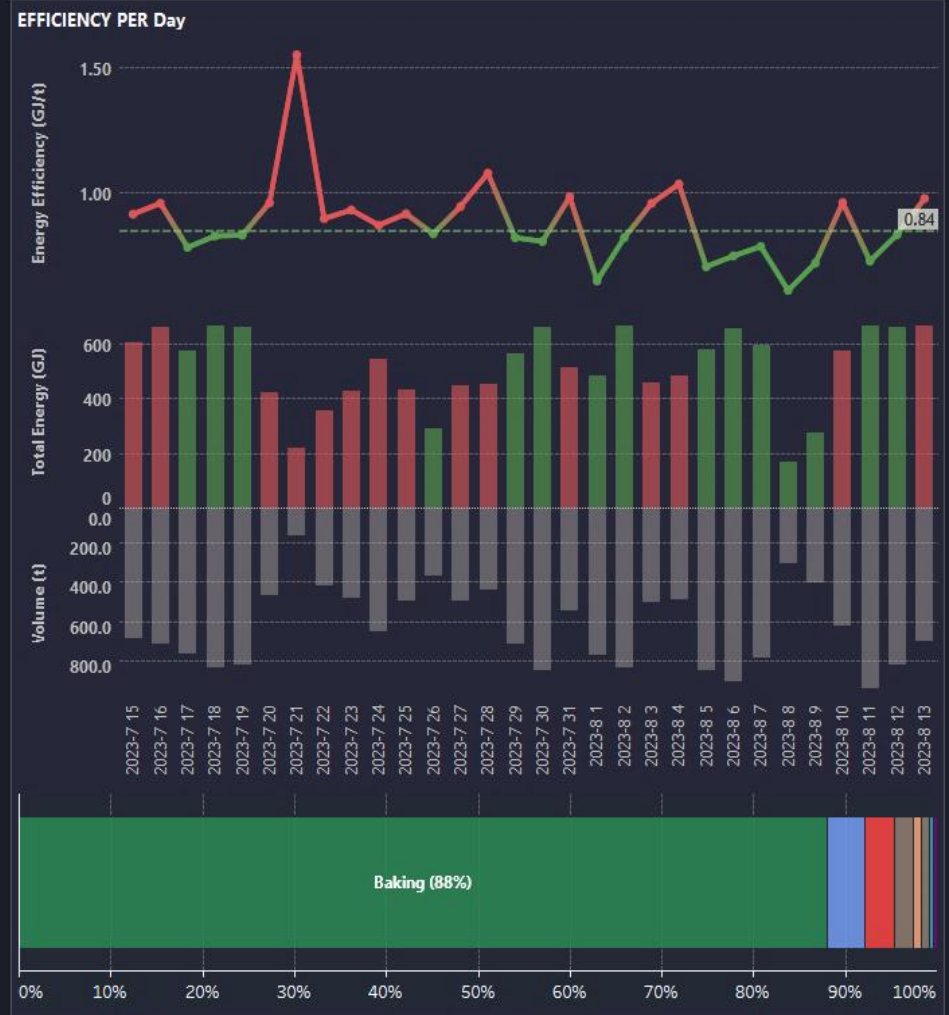
KPI Comparison EndDate

<b>ENERGY EFFICIENCY</b> <b>0.85 GJ/t</b> <i>7.1% higher</i>	<b>TOTAL ENERGY</b> <b>15,399 GJ</b>	<b>TOTAL VOLUME</b> <b>18,217 t</b>
--	---	--

**CARBON FOOTPRINT (CO<sub>2</sub>)**  
**8.800 t**  
*CO<sub>2</sub>/t is 7.2% higher*

**TOTAL GAS**  
**8.800 m<sup>3</sup>**  
*m<sup>3</sup>/t is 6.7% higher*

**TOTAL ELECTRICITY**  
**2,869K kWh**  
*kWh/t is 7.3% higher*



KPI Comparison StartDate

6/1/2022

KPI Comparison EndDate

6/30/2022

Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

FILTERS

StartDate: 7/15/2023

EndDate: 8/13/2023

Details per: Day

Daystart: 12:00 AM

Focus Area: Baking

Asset Context

Site: NL0076

Area: (All)

Workunit: (All)

Module: (All)

Production Context

Shift: (All)

Status: (All)

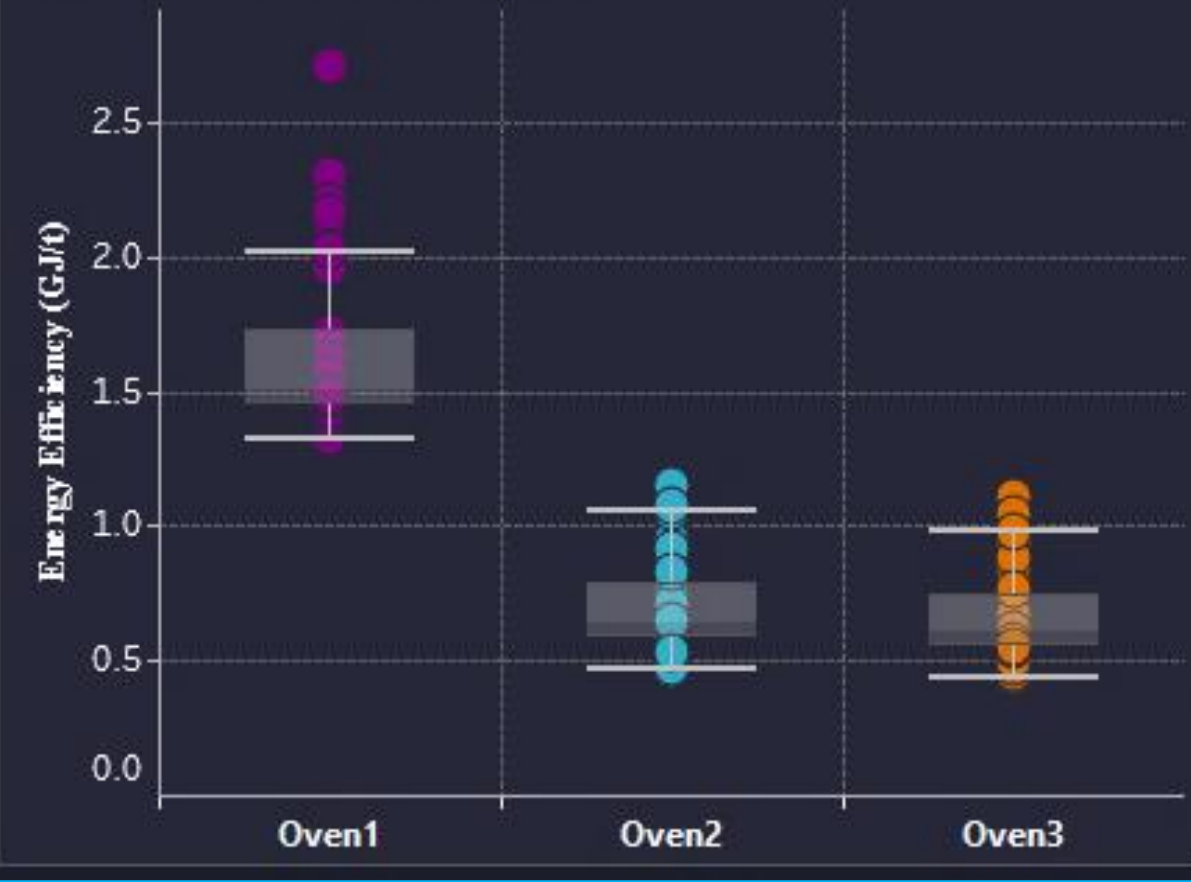
Product: (Multiple values)

Batch (Full): (All)

EFFICIENCY PER Day



ASSET & BATCH EFFICIENCY (GJ/t)



PRODUCT PERFORMANCE MATRIX





## Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- StartDate
- EndDate
- Details per
- Daystart
- Focus Area
- Asset Context
- Site
- Area
- Workunit
- Module
- Production Context
- Shift
- Status
- Product
- Batch (Full)



KPI Comparison StartDate

KPI Comparison EndDate

<b>ENERGY EFFICIENCY</b> <b>0.85 GJ/t</b> <span style="color: red;">7.1% higher</span>	<b>TOTAL ENERGY</b> <b>15,399 GJ</b>	<b>TOTAL VOLUME</b> <b>18,217 t</b>
--	---	--

**CARBON FOOTPRINT (CO<sub>2</sub>)**

**8.800 t**

CO<sub>2</sub>/t is 7.2% higher

**TOTAL GAS**

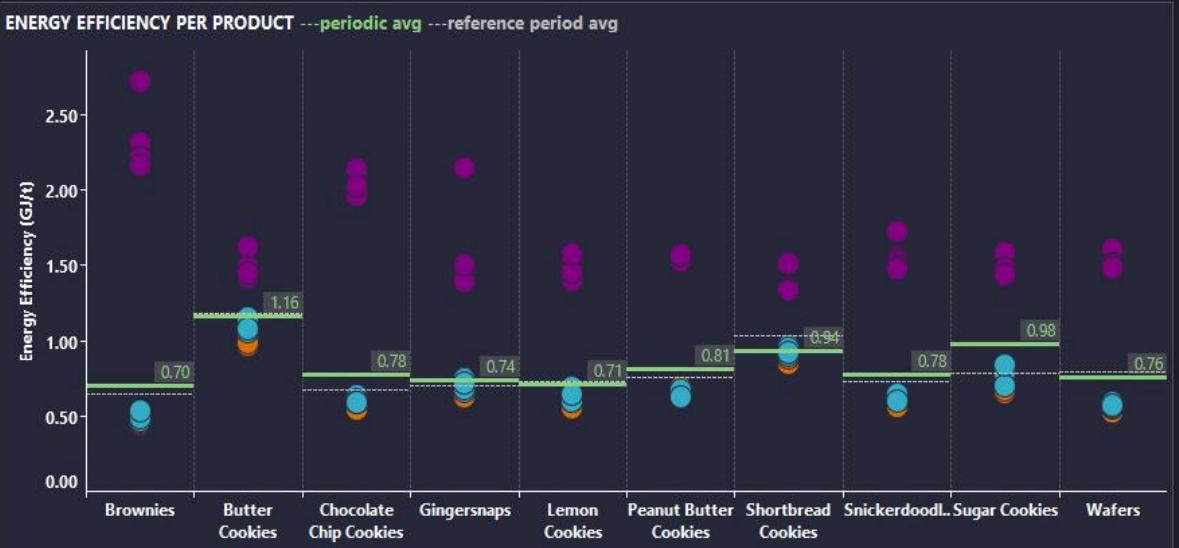
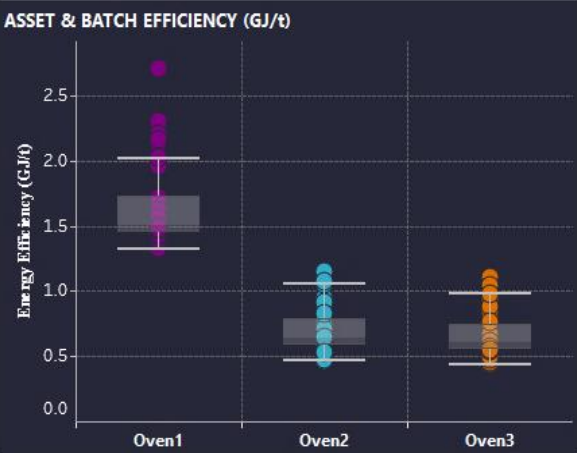
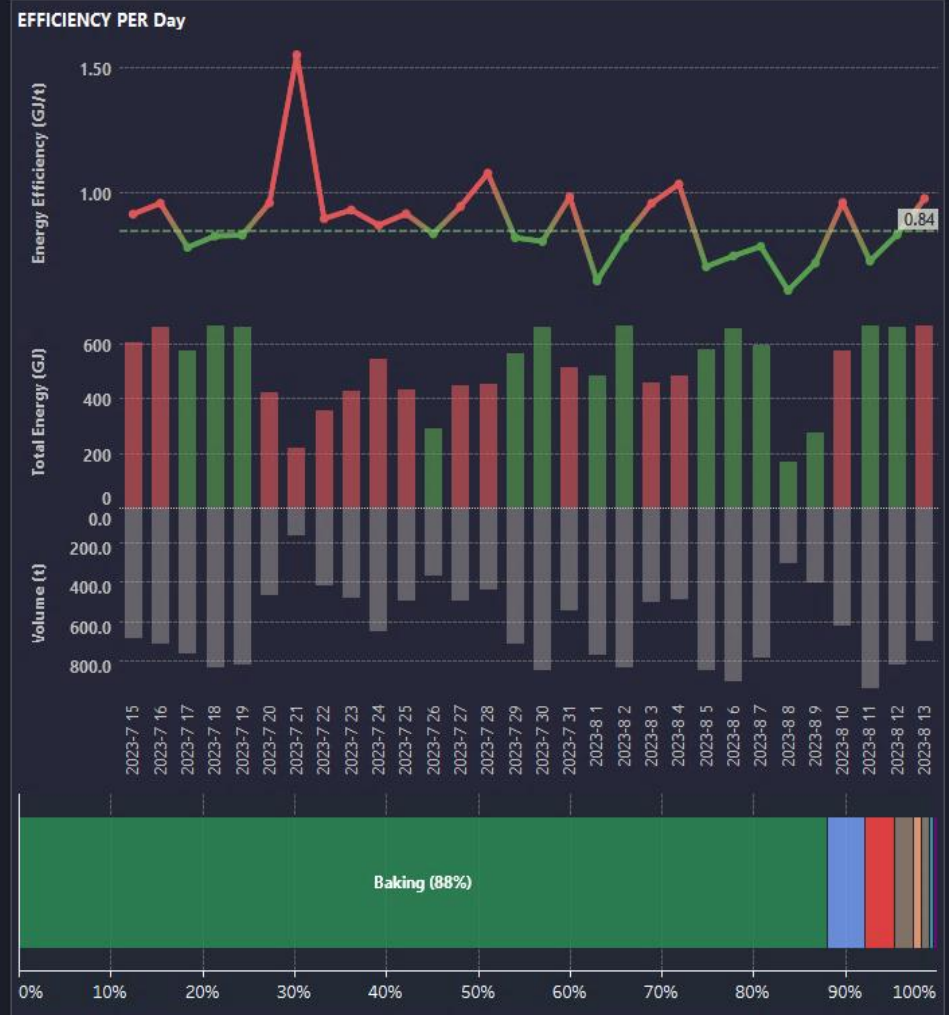
**8.800 m<sup>3</sup>**

m<sup>3</sup>/t is 6.7% higher

**TOTAL ELECTRICITY**

**2,869K kWh**

kWh/t is 7.3% higher



## Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- StartDate
- EndDate
- Details per
- Daystart
- Focus Area
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- Status
- Product
- Batch (Full)



KPI Comparison StartDate

KPI Comparison EndDate

<b>ENERGY EFFICIENCY</b> <b>0.85 GJ/t</b> <span style="color: red;">7.1% higher</span>	<b>TOTAL ENERGY</b> <b>15,399 GJ</b>	<b>TOTAL VOLUME</b> <b>18,217 t</b>
--	---	--

**CARBON FOOTPRINT (CO<sub>2</sub>)**

**8.800 t**

CO<sub>2</sub>/t is 7.2% higher

**TOTAL GAS**

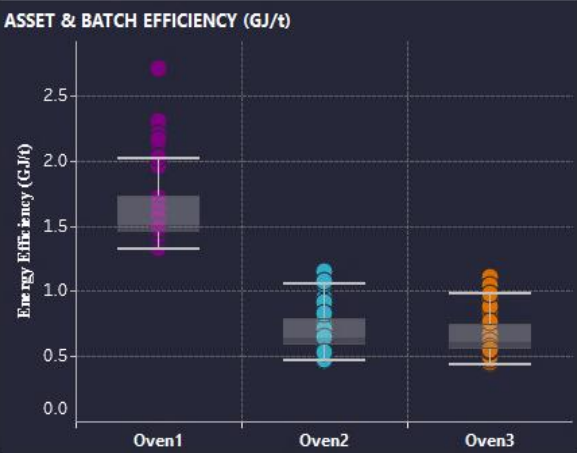
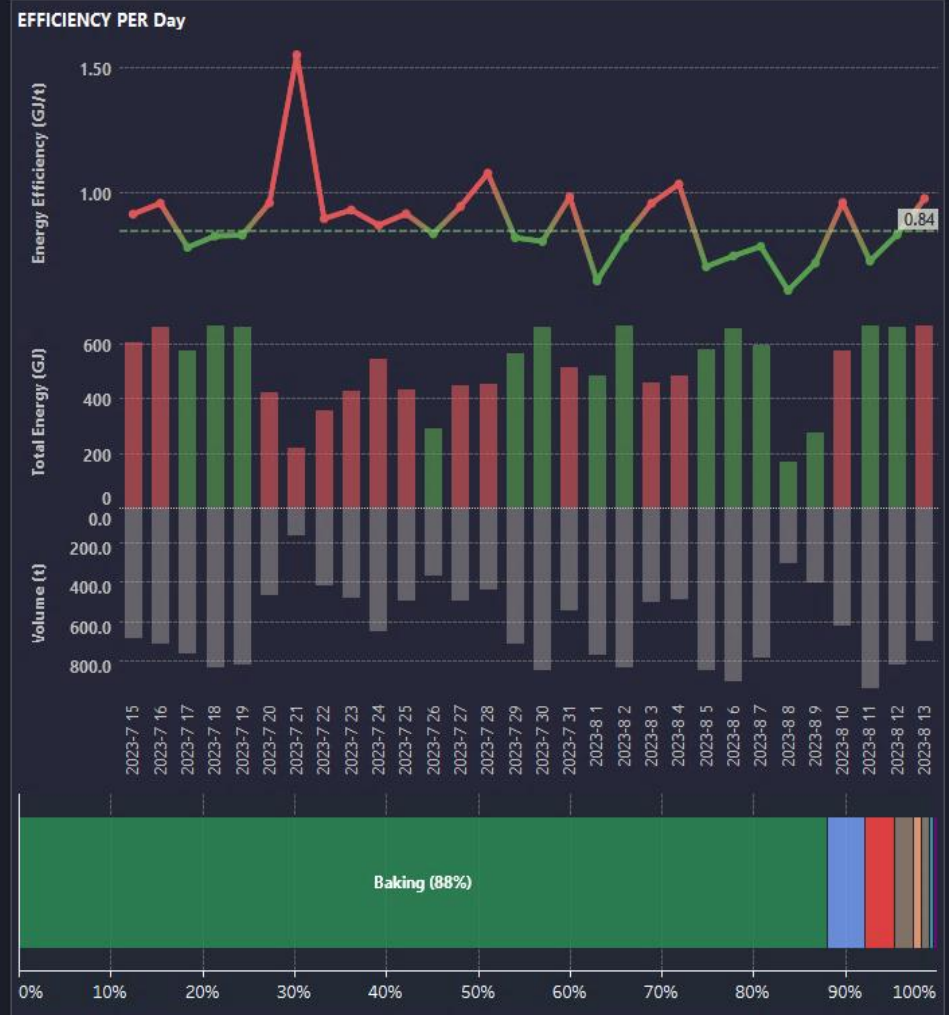
**8.800 m<sup>3</sup>**

m<sup>3</sup>/t is 6.7% higher

**TOTAL ELECTRICITY**

**2,869K kWh**

kWh/t is 7.3% higher



**KPI Comparison StartDate**  
6/1/2022

**KPI Comparison EndDate**  
6/30/2022

<b>ENERGY EFFICIENCY</b>	<b>TOTAL ENERGY</b>	<b>TOTAL VOLUME</b>
<b>0.85 GJ/t</b>	<b>15,399 GJ</b>	<b>18,217 t</b>
7.1% higher		

<b>CARBON FOOTPRINT (CO<sub>2</sub>)</b>
<b>8.800 t</b>
CO <sub>2</sub> /t is 7.2% higher

<b>TOTAL GAS</b>
<b>8.800 m<sup>3</sup></b>
m <sup>3</sup> /t is 6.7% higher

<b>TOTAL ELECTRICITY</b>
<b>2,869K kWh</b>
kWh/t is 7.3% higher

## Dashboards

Daily Energy Analysis

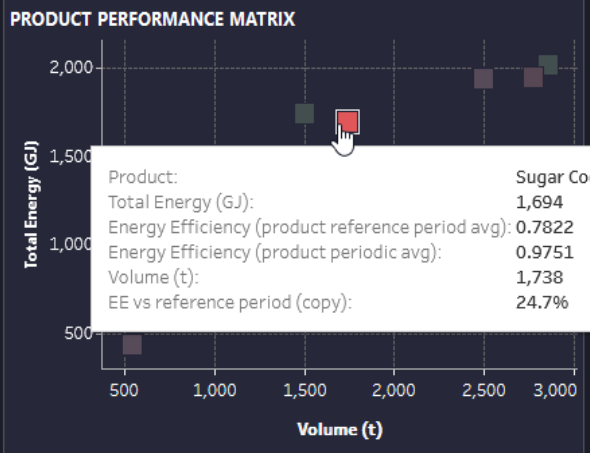
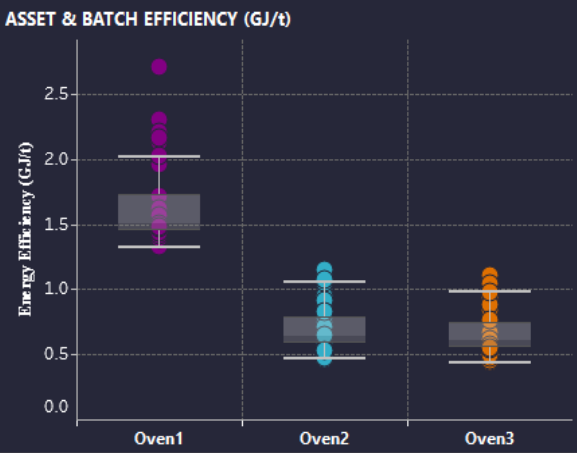
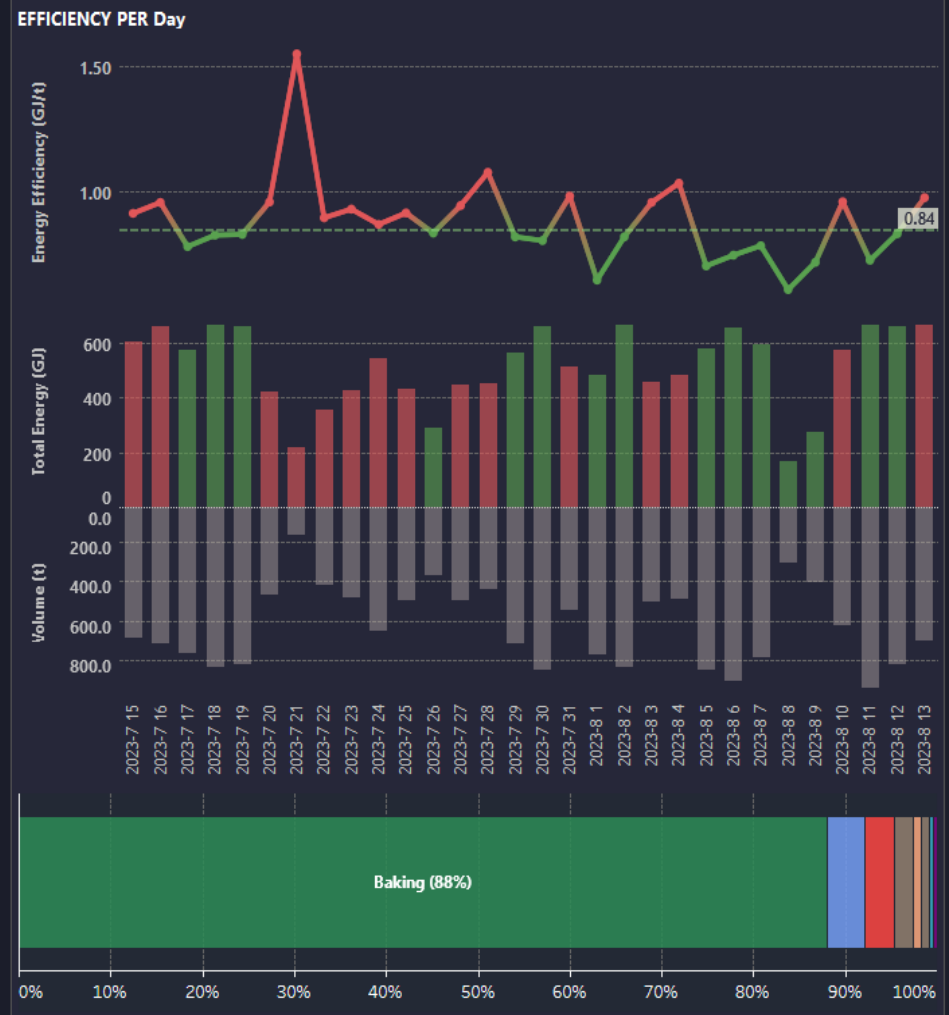
Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- StartDate
- EndDate
- Details per
- Daystart
- Focus Area
- Asset Context
- Site
- Area
- Workunit
- Module
- Production Context
- Shift
- Status
- Product
- Batch (Full)





**KPI Comparison StartDate**  
 6/1/2022  
**KPI Comparison EndDate**  
 6/30/2022

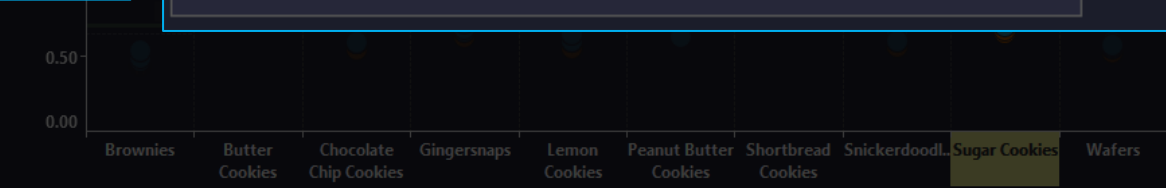
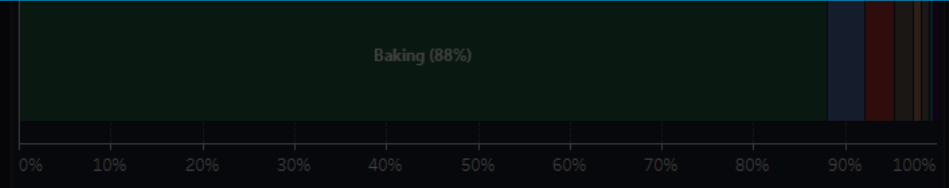
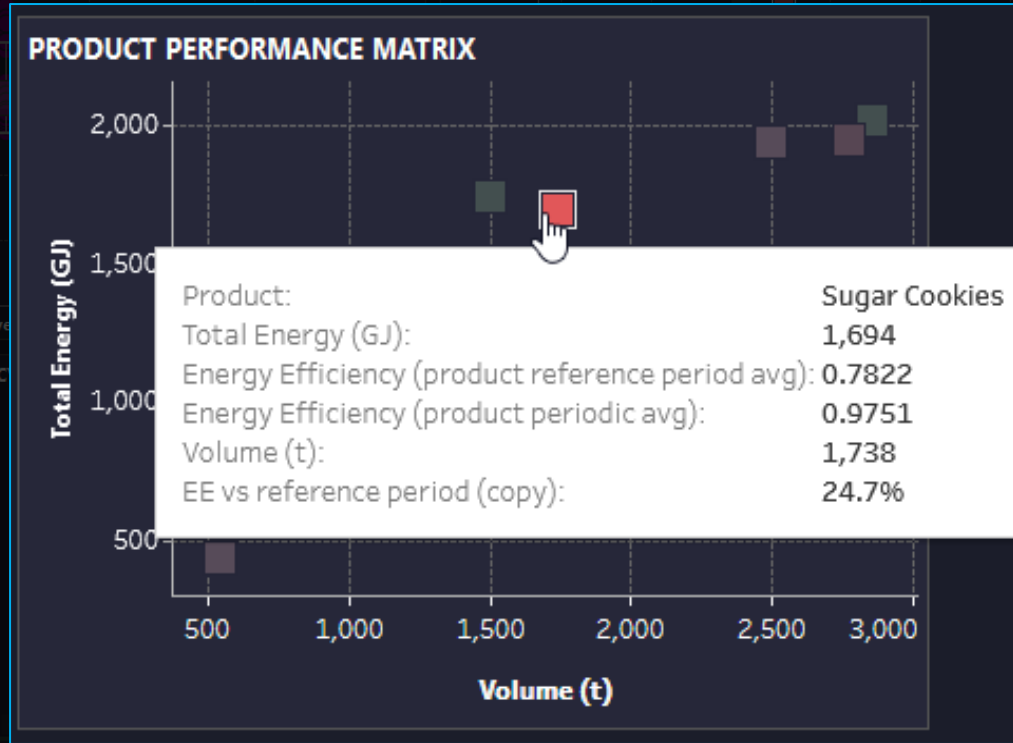
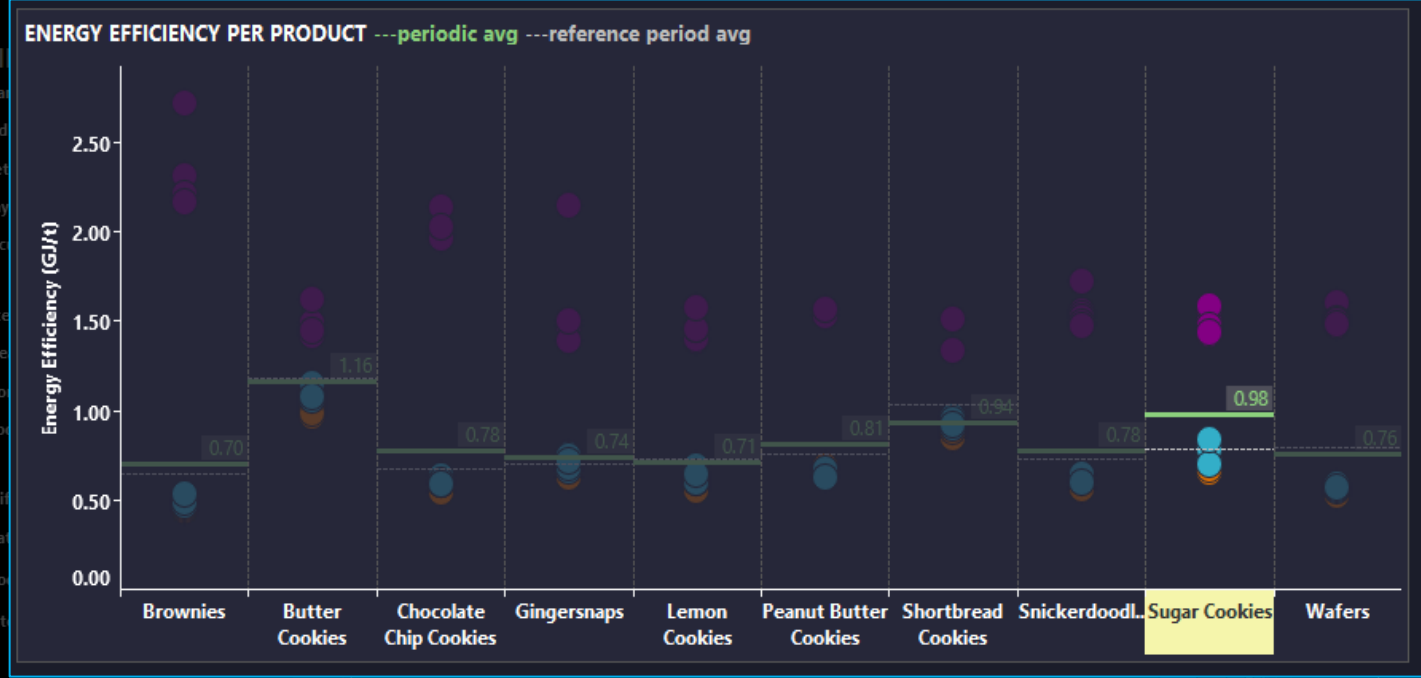
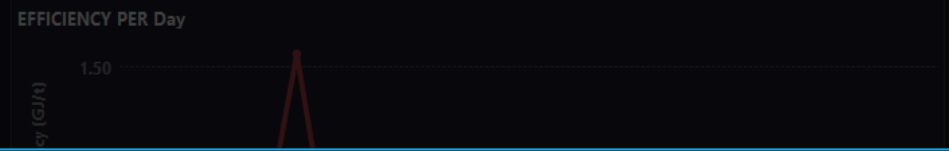
<b>ENERGY EFFICIENCY</b> <b>0.85 GJ/t</b> <i>7.1% higher</i>	<b>TOTAL ENERGY</b> <b>15,399 GJ</b>	<b>TOTAL VOLUME</b> <b>18,217 t</b>
--	---	--

<b>CARBON FOOTPRINT (CO<sub>2</sub>)</b> <b>8.800 t</b> <i>CO<sub>2</sub>/t is 7.2% higher</i>
--

<b>TOTAL GAS</b> <b>8.800 m<sup>3</sup></b> <i>m<sup>3</sup>/t is 6.7% higher</i>
---

<b>TOTAL ELECTRICITY</b> <b>2,869K kWh</b> <i>kWh/t is 7.3% higher</i>
--

- Dashboards**
- Daily Energy Analysis
- Periodic Energy Analysis
- Asset Energy Analysis
- KPI Report



**KPI Comparison StartDate**  
6/1/2022

**KPI Comparison EndDate**  
6/30/2022

<b>ENERGY EFFICIENCY</b>	<b>TOTAL ENERGY</b>	<b>TOTAL VOLUME</b>
<b>0.85 GJ/t</b>	<b>15,399 GJ</b>	<b>18,217 t</b>
<i>7.1% higher</i>		

**CARBON FOOTPRINT (CO<sub>2</sub>)**

**8.800 t**

*CO<sub>2</sub>/t is 7.2% higher*

**TOTAL GAS**

**8.800 m<sup>3</sup>**

*m<sup>3</sup>/t is 6.7% higher*

**TOTAL ELECTRICITY**

**2,869K kWh**

*kWh/t is 7.3% higher*

## Dashboards

Daily Energy Analysis

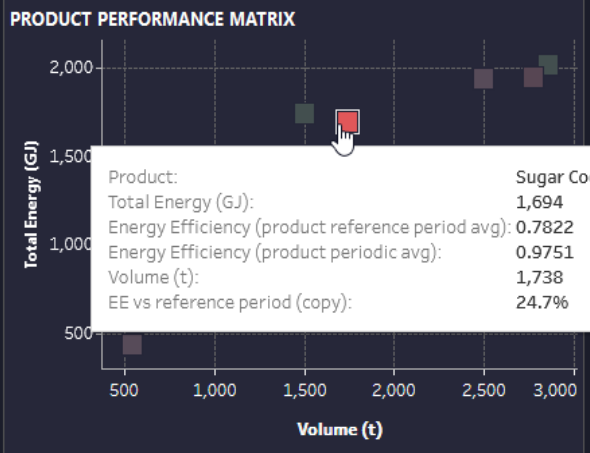
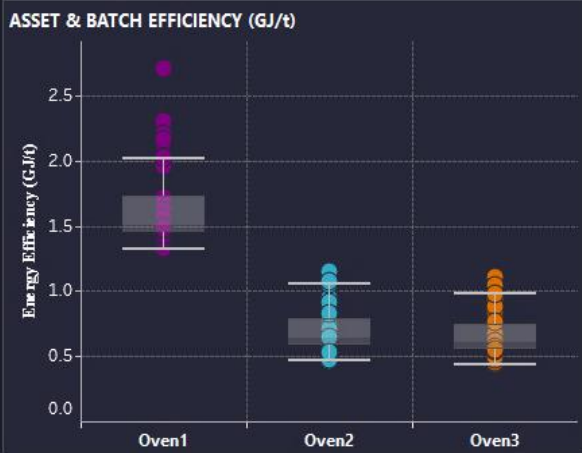
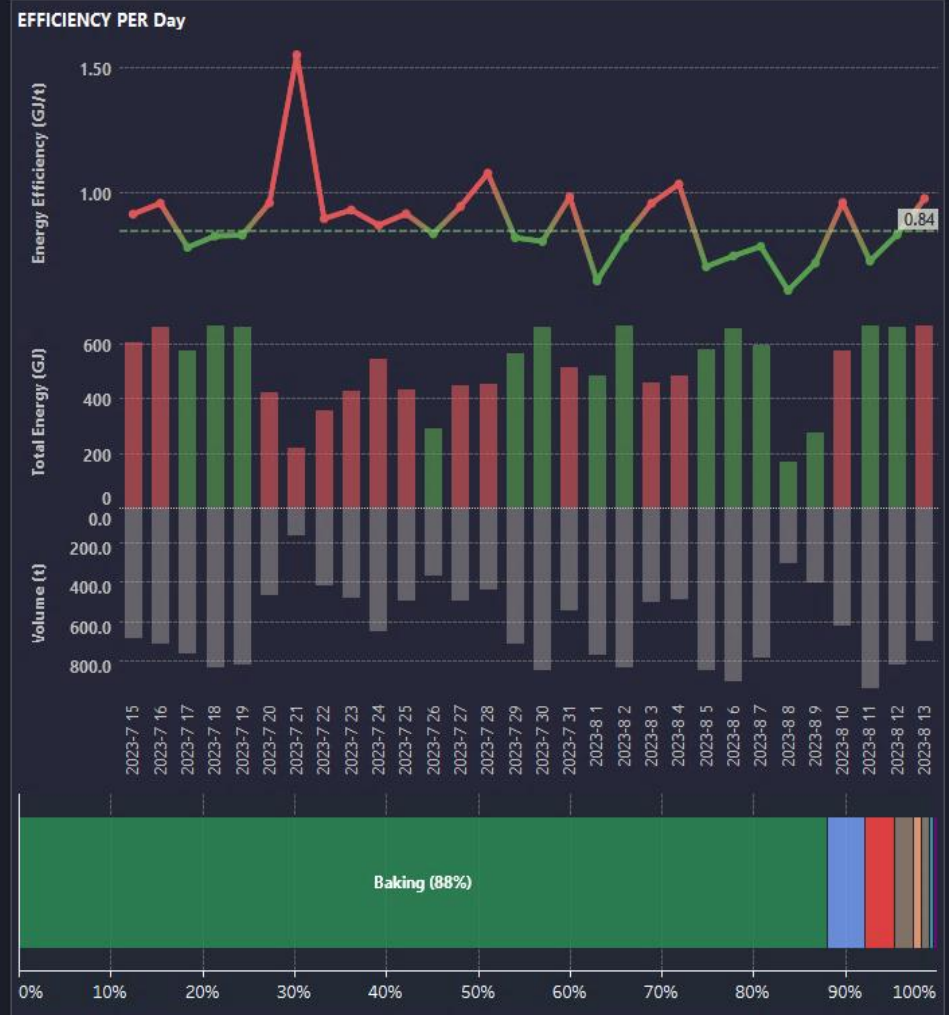
Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

- StartDate:
- EndDate:
- Details per:
- Daystart:
- Focus Area:
- Asset Context
- Site:
- Area:
- Workunit:
- Module:
- Production Context
- Shift:
- Status:
- Product:
- Batch (Full):



## Dashboards

- Daily Energy Analysis
- Periodic Energy Analysis
- Asset Energy Analysis
- KPI Report

## FILTERS

StartDate

EndDate

Asset Context

Site

Area

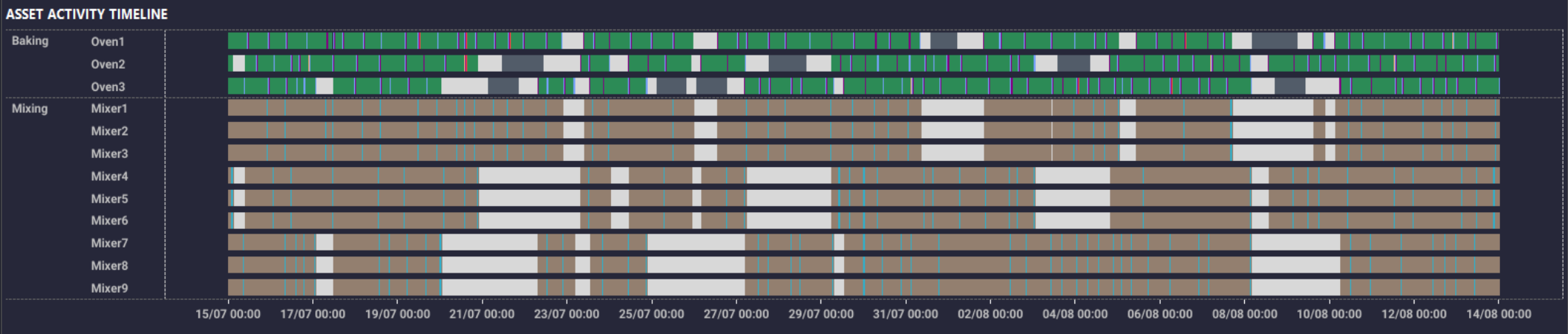
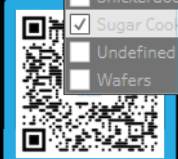
Production Context

Shift

Product

Batch (Full)

- (All)
- Brownies
- Butter Cookies
- Chocolate Chip Cookies
- Gingersnaps
- Lemon Cookies
- No Product
- Peanut Butter Cookies
- Shortbread Cookies
- Snickerdoodles
- Sugar Cookies
- Undefined
- Wafers



### ASSET STATISTICS PER PRODUCTION STATUS

	Energy Share (%)	Total Energy (GJ)	Emission (kg CO2)	Gas (m <sup>3</sup> )	Electricity (kWh)
Baking	82.43%	13,541.7	1,631,845	152,987	2,416,577
Cooling	3.88%	637.2	98,415	0	177,005
Heating	3.01%	494.5	54,595	7,249	73,631
Maintenance	6.26%	1,028.4	158,601	78	284,989
Mixing	1.95%	320.5	49,500		89,028
Waiting for input	0.88%	145.0	22,390	0	40,270
Changeover	0.36%	59.3	9,161	0	16,477
Dosing ingredients	0.76%	125.0	19,310		34,730
Cleaning	0.45%	74.6	11,526		20,731
Powered Off	0.01%	1.2	188	0	339

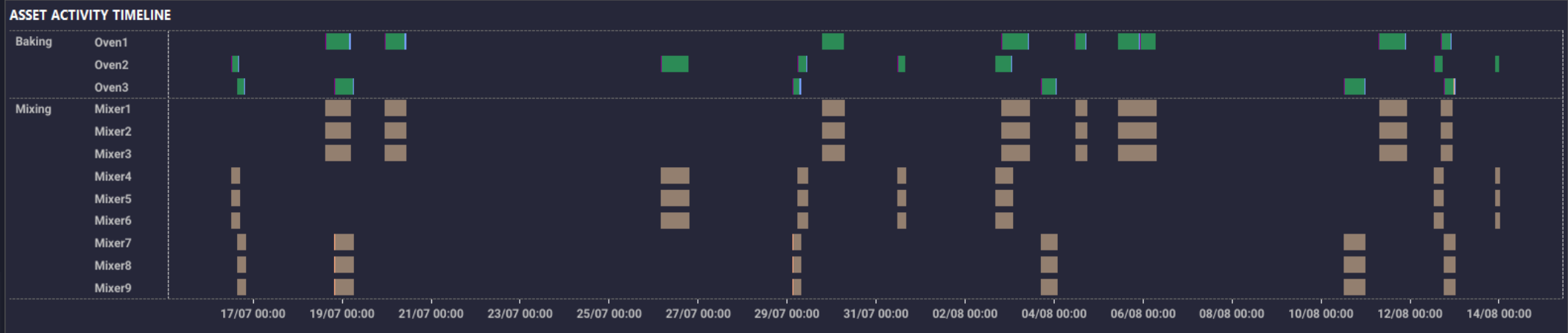
### ENERGY ANALYSIS PER PRODUCTION STATUS EVENT

Work Unit:  Status:  Category:  Sub Cat.:

*Click on a cell to see tag trend with underlying data points*

Event	Start	End	Status	Category	Sub Cat.	Air (m <sup>3</sup> )	Electricity (kWh)	Gas (m <sup>3</sup> )	End Product (t)
7/14/2023 9:52:15 PM - 7/15/2023 10:13:15 AM			Baking	12:21:00		0.0	16,912.0	1,070.9	45.9
7/15/2023 10:13:15 .. 7/15/2023 10:18:50 AM			Waiting for input	00:05:35		0.0	154.0	0.0	0.0
7/15/2023 10:18:50 .. 7/15/2023 10:59:15 AM			Cooling	00:40:25		4,816.8	1,112.0	0.0	0.0
7/15/2023 10:59:15 .. 7/15/2023 11:25:25 AM			Changeover	00:26:10		0.0	93.0	0.0	0.0
7/15/2023 11:25:25 .. 7/15/2023 11:40:30 AM			Heating	00:15:05		0.0	416.0	40.9	0.0
7/15/2023 11:40:30 .. 7/15/2023 10:08:15 PM			Baking	10:27:45		0.0	17,313.0	1,096.1	70.4
7/15/2023 10:08:15 .. 7/15/2023 10:13:20 PM			Waiting for input	00:05:05		0.0	140.0	0.0	0.0
7/15/2023 10:13:20 .. 7/15/2023 10:45:35 PM			Cooling	00:32:15		3,843.7	887.0	0.0	0.0
7/15/2023 10:45:35 .. 7/15/2023 11:11:45 PM			Changeover	00:26:10		0.0	94.0	0.0	0.0
7/15/2023 11:11:45 .. 7/15/2023 11:26:50 PM			Heating	00:15:05		0.0	416.0	40.9	0.0
7/15/2023 11:26:50 .. 7/16/2023 8:13:35 AM			Baking	08:46:45		0.0	14,527.0	919.9	58.9
7/16/2023 8:13:35 AM - 7/16/2023 8:18:25 AM			Waiting for input	00:04:50		0.0	133.0	0.0	0.0
7/16/2023 8:18:25 AM - 7/16/2023 8:51:35 AM			Cooling	00:33:10		3,949.7	912.0	0.0	0.0
7/16/2023 8:51:35 AM - 7/16/2023 9:21:30 AM			Changeover	00:29:55		0.0	93.0	0.0	0.0
7/16/2023 9:21:30 AM - 7/16/2023 9:36:35 AM			Heating	00:15:05		0.0	416.0	40.9	0.0
7/16/2023 9:36:35 AM - 7/16/2023 8:01:55 PM			Baking	10:25:20		0.0	17,245.0	1,091.7	47.2
7/16/2023 8:01:55 PM - 7/16/2023 8:06:15 PM			Waiting for input	00:04:20		0.0	119.0	0.0	0.0
7/16/2023 8:06:15 PM - 7/16/2023 8:47:05 PM			Cooling	00:40:50		4,865.8	1,124.0	0.0	0.0
7/16/2023 8:47:05 PM - 7/16/2023 8:58:15 PM			Changeover	00:11:10		0.0	94.0	0.0	0.0





**Filters**

(All)  
 2022-BA10495  
 2022-BA10498  
 2022-BA10521  
 2022-BA10531  
 2022-BA10534  
 2022-BA10537  
 2022-BA10538  
 2022-BA10552  
 2022-BA10555  
 2022-BA20502

### FILTERS

Start Date:

End Date:

Asset Context:

Site:

Area:

Production Context:

Shift:

Product:

Batch (Full):

- (All)
- Brownies
- Butter Cookies
- Chocolate Chip Cookies
- Gingersnaps
- Lemon Cookies
- No Product
- Peanut Butter Cookies
- Shortbread Cookies
- Snickerdoodles
- Sugar Cookies
- Undefined
- Wafers

### ASSET STATISTICS PER PRODUCTION STATUS

	Energy Share (%)	Total Energy (GJ)	Emission (kg CO2)	Gas (m <sup>3</sup> )	Electricity (kWh)
Baking	82.43%	13,541.7	1,631,845	152,987	2,416,577
Cooling	3.88%	637.2	98,415	0	177,005
Heating	3.01%	494.5	54,595	7,249	73,631
Maintenance	6.26%	1,028.4	158,601	78	284,989
Mixing	1.95%	320.5	49,500		89,028
Waiting for input	0.88%	145.0	22,390	0	40,270
Changeover	0.36%	59.3	9,161	0	16,477
Dosing ingredients	0.76%	125.0	19,310		34,730
Cleaning	0.45%	74.6	11,526		20,731
Powered Off	0.01%	1.2	188	0	339

### ENERGY ANALYSIS PER PRODUCTION STATUS EVENT

Work Unit:  Status:  Category:  Sub Cat.:

*Click on a cell to see tag trend with underlying data points*

Event	Start	End	Status	Category	Sub Cat.	Air (m <sup>3</sup> )	Electricity (kWh)	Gas (m <sup>3</sup> )	End Product (t)
7/14/2023 9:52:15 PM - 7/15/2023 10:13:15 AM			Baking	12:21:00		0.0	16,912.0	1,070.9	45.9
7/15/2023 10:13:15 .. - 7/15/2023 10:18:50 AM			Waiting for input	00:05:35		0.0	154.0	0.0	0.0
7/15/2023 10:18:50 .. - 7/15/2023 10:59:15 AM			Cooling	00:40:25		4,816.8	1,112.0	0.0	0.0
7/15/2023 10:59:15 .. - 7/15/2023 11:25:25 AM			Changeover	00:26:10		0.0	93.0	0.0	0.0
7/15/2023 11:25:25 .. - 7/15/2023 11:40:30 AM			Heating	00:15:05		0.0	416.0	40.9	0.0
7/15/2023 11:40:30 .. - 7/15/2023 10:08:15 PM			Baking	10:27:45		0.0	17,313.0	1,096.1	70.4
7/15/2023 10:08:15 .. - 7/15/2023 10:13:20 PM			Waiting for input	00:05:05		0.0	140.0	0.0	0.0
7/15/2023 10:13:20 .. - 7/15/2023 10:45:35 PM			Cooling	00:32:15		3,843.7	887.0	0.0	0.0
7/15/2023 10:45:35 .. - 7/15/2023 11:11:45 PM			Changeover	00:26:10		0.0	94.0	0.0	0.0
7/15/2023 11:11:45 .. - 7/15/2023 11:26:50 PM			Heating	00:15:05		0.0	416.0	40.9	0.0
7/15/2023 11:26:50 .. - 7/16/2023 8:13:35 AM			Baking	08:46:45		0.0	14,527.0	919.9	58.9
7/16/2023 8:13:35 AM - 7/16/2023 8:18:25 AM			Waiting for input	00:04:50		0.0	133.0	0.0	0.0
7/16/2023 8:18:25 AM - 7/16/2023 8:51:35 AM			Cooling	00:33:10		3,949.7	912.0	0.0	0.0
7/16/2023 8:51:35 AM - 7/16/2023 9:21:30 AM			Changeover	00:29:55		0.0	93.0	0.0	0.0
7/16/2023 9:21:30 AM - 7/16/2023 9:36:35 AM			Heating	00:15:05		0.0	416.0	40.9	0.0
7/16/2023 9:36:35 AM - 7/16/2023 8:01:55 PM			Baking	10:25:20		0.0	17,245.0	1,091.7	47.2
7/16/2023 8:01:55 PM - 7/16/2023 8:06:15 PM			Waiting for input	00:04:20		0.0	119.0	0.0	0.0
7/16/2023 8:06:15 PM - 7/16/2023 8:47:05 PM			Cooling	00:40:50		4,865.8	1,124.0	0.0	0.0
7/16/2023 8:47:05 PM - 7/16/2023 8:58:15 PM			Changeover	00:11:10		0.0	94.0	0.0	0.0

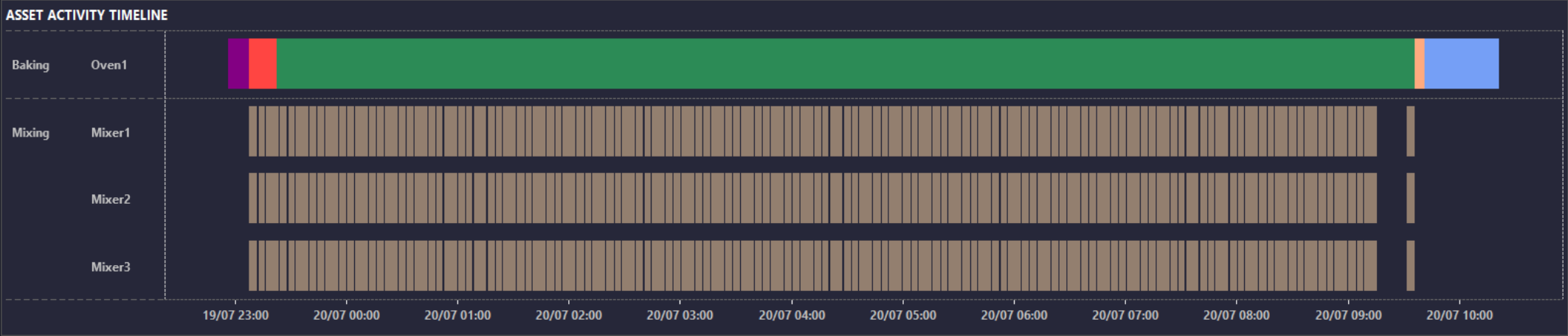
**Filters**

**Asset**

- (All)
- 2022-BA10495
- 2022-BA10498
- 2022-BA10521
- 2022-BA10531
- 2022-BA10534
- 2022-BA10537
- 2022-BA10538
- 2022-BA10552
- 2022-BA10555
- 2022-BA20502
- 2022-BA20525
- 2022-BA20531
- 2022-BA20538
- 2022-BA20544
- 2022-BA20569
- 2022-BA20573
- 2022-BA30505
- 2022-BA30511
- 2022-BA30538
- 2022-BA30552
- 2022-BA30571
- 2022-BA30577
- No Batch

**Batch (Full)**

2022-BA10498



### ASSET STATISTICS PER PRODUCTION STATUS

	Energy Share (%)	Total Energy (GJ)	Emission (kg CO2)	Gas (m <sup>3</sup> )	Electricity (kWh)
Baking	90.15%	94.8	11,422	1,071	16,914
Cooling	3.79%	4.0	616	0	1,108
Heating	2.66%	2.8	309	41	417
Mixing	1.50%	1.6	243		437
Waiting for input	0.49%	0.5	79	0	142
Changeover	0.32%	0.3	52	0	93
Dosing ingredients	1.09%	1.1	178		319

### ENERGY ANALYSIS PER PRODUCTION STATUS EVENT

Work Unit: Oven1 | Status: (All) | Category: (Multiple values) | Sub Cat.: (All)

*Click on a cell to see tag trend with underlying data points*

Event	Air (m <sup>3</sup> )	Electricity (kWh)	Gas (m <sup>3</sup> )	End Product (t)
7/19/2023 10:56:15 .. - 7/19/2023 11:07:25 PM Changeover 00:11:10	0.0	93.0	0.0	0.0
7/19/2023 11:07:25 .. - 7/19/2023 11:22:30 PM Heating 00:15:05	0.0	417.0	41.0	0.0
7/19/2023 11:22:30 .. - 7/20/2023 9:35:50 AM Baking 10:13:20	0.0	16,914.0	1,071.0	69.8
7/20/2023 9:35:50 AM - 7/20/2023 9:41:00 AM Waiting for input 00:05:10	0.0	142.0	0.0	0.0
7/20/2023 9:41:00 AM - 7/20/2023 10:21:15 AM Cooling 00:40:15	4,795.3	1,108.0	0.0	0.0



ASSET ACTIVITY TIMELINE



Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy

KPI

FILTERS

StartDate 7/15

EndDate 8/13

Asset

Site

Area

Product

Shift

Product

Batch (Full)

## ENERGY ANALYSIS PER PRODUCTION STATUS EVENT

Work Unit  Status  Category  Sub Cat.

*Click on a cell to see tag trend with underlying data points*

				Air	Electricity	Gas	End Product
				m3	kWh	m3	t
7/19/2023 10:56:15 ..	-	7/19/2023 11:07:25 PM	Changeover 00:11:10	0.0	93.0	0.0	0.0
7/19/2023 11:07:25 ..	-	7/19/2023 11:22:30 PM	Heating 00:15:05	0.0	417.0	41.0	0.0
7/19/2023 11:22:30 ..	-	7/20/2023 9:35:50 AM	Baking 10:13:20	0.0	16,914.0	1,071.0	69.8
7/20/2023 9:35:50 AM	-	7/20/2023 9:41:00 AM	Waiting for input 00:05:10	0.0	142.0	0.0	0.0
7/20/2023 9:41:00 AM	-	7/20/2023 10:21:15 AM	Cooling 00:40:15	4,795.3	1,108.0	0.0	0.0

Mixing	1.50%	1.6	243	437
Waiting for input	0.49%	0.5	79	142
Changeover	0.32%	0.3	52	93
Dosing ingredients	1.09%	1.1	178	319





## Dashboards

Daily Energy Analysis

Periodic Energy Analysis

**Asset Energy Analysis**

KPI Report

## FILTERS

StartDate

EndDate

Asset Context

Site

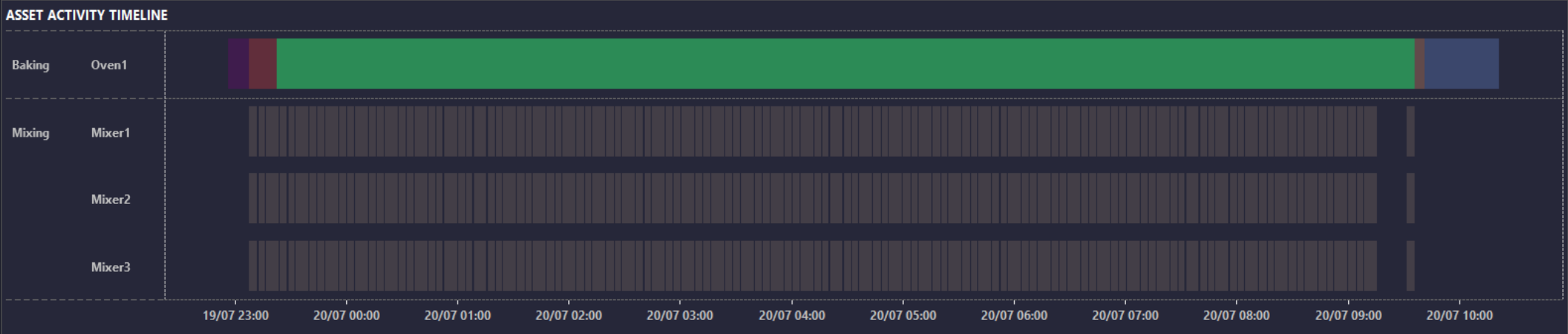
Area

Production Context

Shift

Product

Batch (Full)



### ASSET STATISTICS PER PRODUCTION STATUS

	Energy Share (%)	Total Energy (GJ)	Emission (kg CO2)	Gas (m <sup>3</sup> )	Electricity (kWh)
Baking	90.15%	94.8	11,422	1,071	16,914
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### ENERGY ANALYSIS PER PRODUCTION STATUS EVENT

Work Unit:  Status:  Category:  Sub Cat.:

*Click on a cell to see tag trend with underlying data points*

Work Unit	Status	Category	Sub Cat.	Air (m3)	Electricity (kWh)	Gas (m3)	End Product (t)
7/19/2023 10:56:15 ..	7/19/2023 11:07:25 PM	Changeover	00:11:10	0.0	93.0	0.0	0.0
7/19/2023 11:07:25 ..	7/19/2023 11:22:30 PM	Heating	00:15:05	0.0	417.0	41.0	0.0
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7/20/2023 9:35:50 AM	7/20/2023 9:41:00 AM	Waiting for input	00:05:10	0.0	142.0	0.0	0.0
7/20/2023 9:41:00 AM	7/20/2023 10:21:15 AM	Cooling	00:40:15	4,795.3	1,108.0	0.0	0.0



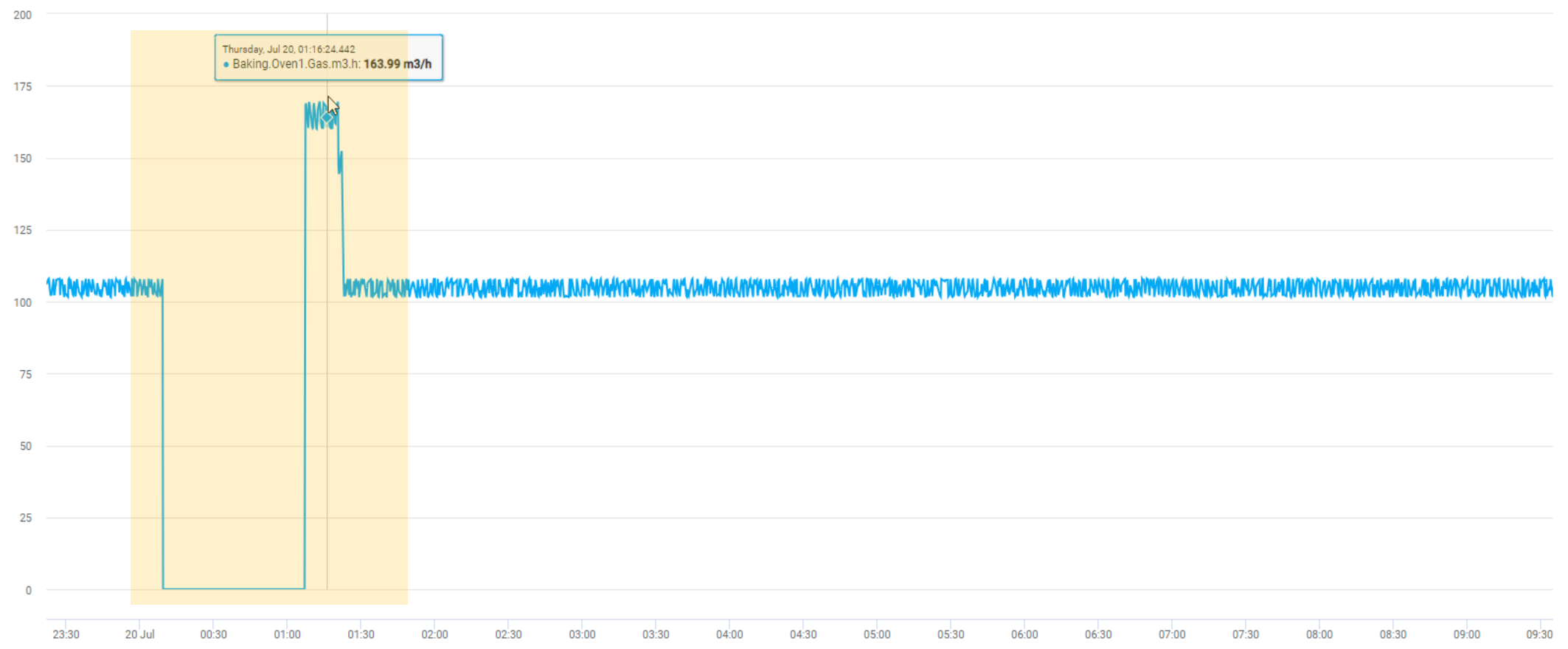
- Home
- Alerts
- Alarms
- Assets
- Lists
- Content
- Dashboards
- News
- Equipment Efficiency
- OEE Analysis
- Administration
- Classic Look

Content001

Cursor Data Settings Save

07/19/2023 11:22:00 pm - 07/20/2023 9:35:00 am

Chart interaction icons: zoom, pan, download, comment, alert



COLLAPSE

Time range selection: 30D, 7D, 3D, YESTERDAY, TODAY, 12H, 1H, CUSTOM

## Dashboards

Daily Energy Analysis

Periodic Energy Analysis

Asset Energy Analysis

KPI Report

## FILTERS

StartDate

EndDate

Asset Context

Site

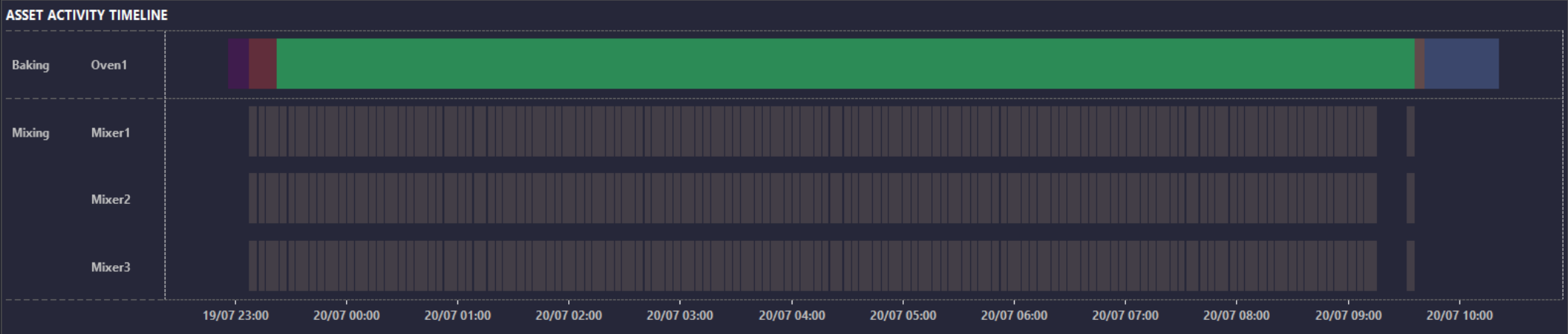
Area

Production Context

Shift

Product

Batch (Full)



### ASSET STATISTICS PER PRODUCTION STATUS

	Energy Share (%)	Total Energy (GJ)	Emission (kg CO2)	Gas (m <sup>3</sup> )	Electricity (kWh)
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Dosing ingredients	1.09%	1.1	178		319

### ENERGY ANALYSIS PER PRODUCTION STATUS EVENT

Work Unit:  Status:  Category:  Sub Cat.:

*Click on a cell to see tag trend with underlying data points*

Work Unit	Status	Category	Sub Cat.	Air (m3)	Electricity (kWh)	Gas (m3)	End Product (t)
7/19/2023 10:56:15 ..	7/19/2023 11:07:25 PM	Changeover	00:11:10	0.0	93.0	0.0	0.0
7/19/2023 11:07:25 ..	7/19/2023 11:22:30 PM	Heating	00:15:05	0.0	417.0	41.0	0.0
7/19/2023 11:22:30 ..	7/20/2023 9:35:50 AM	Baking	10:13:20	0.0	16,914.0	1,071.0	69.8
7/20/2023 9:35:50 AM	7/20/2023 9:41:00 AM	Waiting for input	00:05:10	0.0	142.0	0.0	0.0
7/20/2023 9:41:00 AM	7/20/2023 10:21:15 AM	Cooling	00:40:15	4,795.3	1,108.0	0.0	0.0





4

HOW



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY

4

HOW

1

LOG



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED ENERGY MONITORING SYSTEM.



ANALYTICS  
FOR INDUSTRY

4

HOW

1

LOG

2

COLLECT



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY



4

HOW

1

LOG

2

COLLECT

3

PREPARE



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY

4

HOW

1

LOG

2

COLLECT

3

PREPARE

4

TRANSFORM



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY

4

HOW

1

LOG

2

COLLECT

3

PREPARE

4

TRANSFORM

5

ANALYZE



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY



1

LOG

2

COLLECT

3

PREPARE

4

TRANSFORM

5

ANALYZE



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY

1

LOG

2

COLLECT

3

PREPARE

4

TRANSFORM

5

ANALYZE

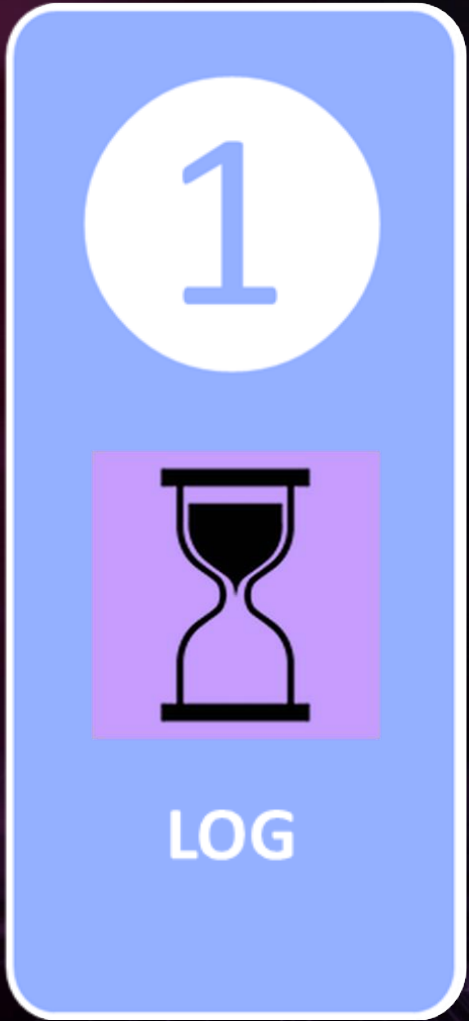
ANALYTICS FOR INDUSTRY | AZURE-BASED ENERGY MONITORING SYSTEM



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED ENERGY MONITORING SYSTEM.



ANALYTICS  
FOR INDUSTRY



ENERGY MEASUREMENTS



SHIFT DATA



BATCH DATA



PRODUCT DATA | SKU DATA



MACHINE STATUS







SPRINT 2

- ENERGY MEASUREMENTS
- SHIFT DATA
- BATCH DATA
- PRODUCT DATA | SKU DATA
- MACHINE STATUS



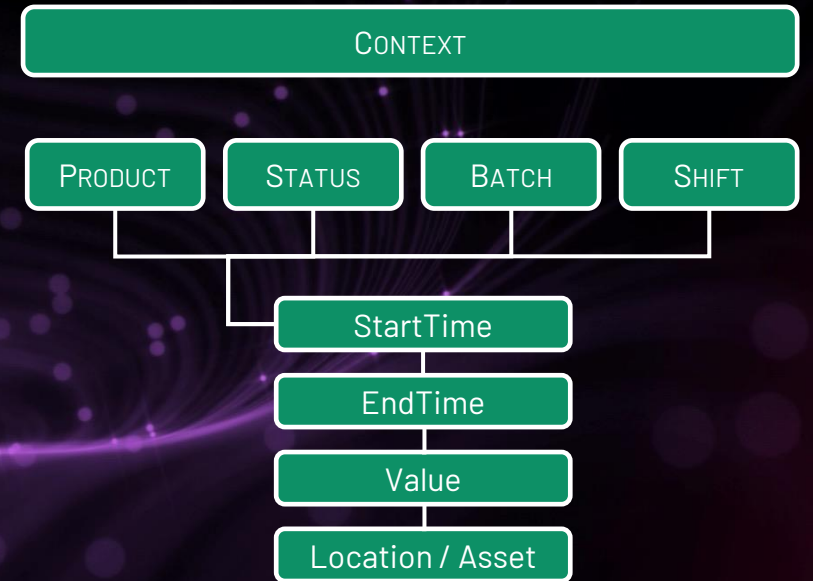
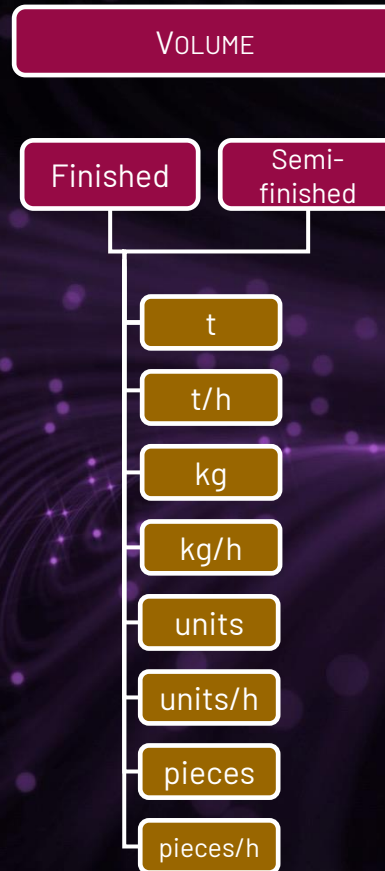
1

LOG





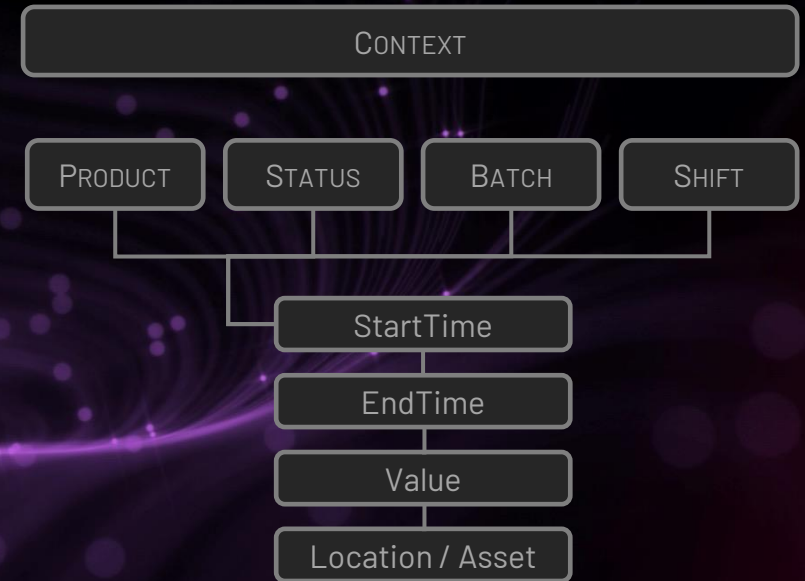
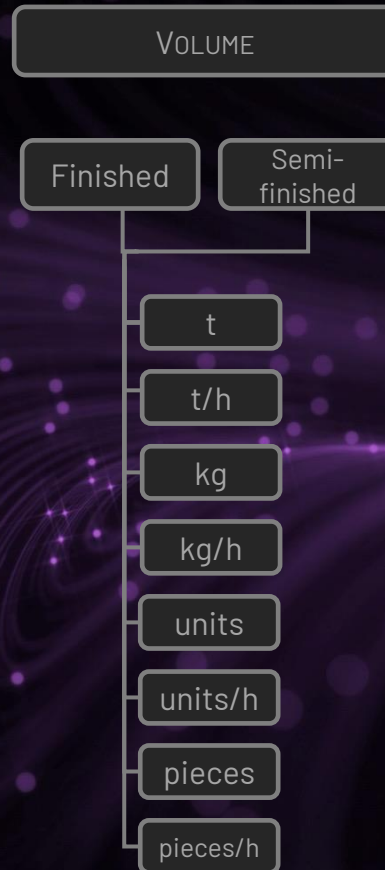
# DATA SUPPORTED BY EMS



*Minimum data requirements:*  
 >= 1 Context data type available  
 >= 1 Energy data type measurement  
 Preferably volume measurements



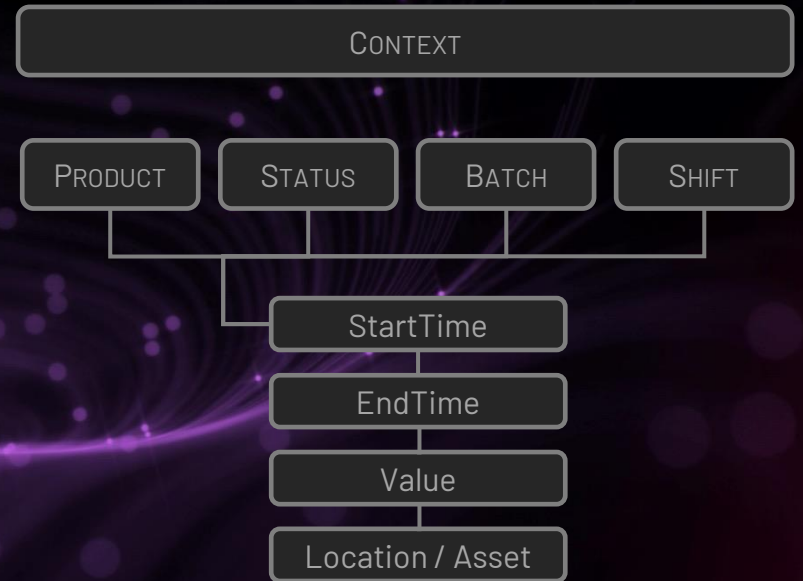
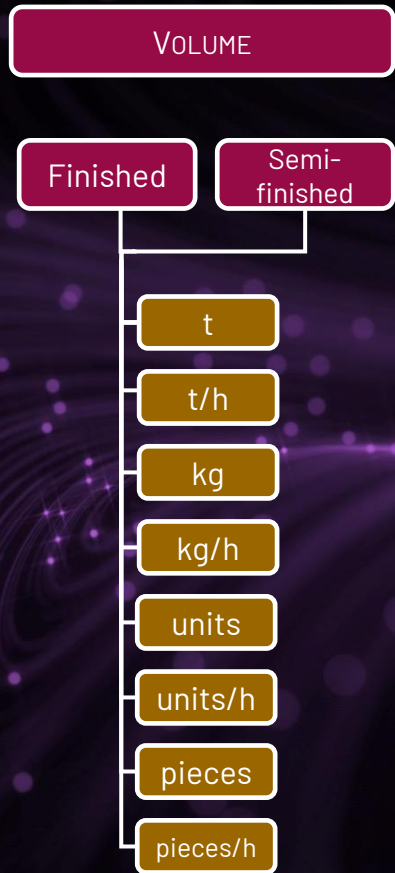
# DATA SUPPORTED BY EMS



*Minimum data requirements:*  
 >= 1 Context data type available  
 >= 1 Energy data type measurement  
 Preferably volume measurements



# DATA SUPPORTED BY EMS

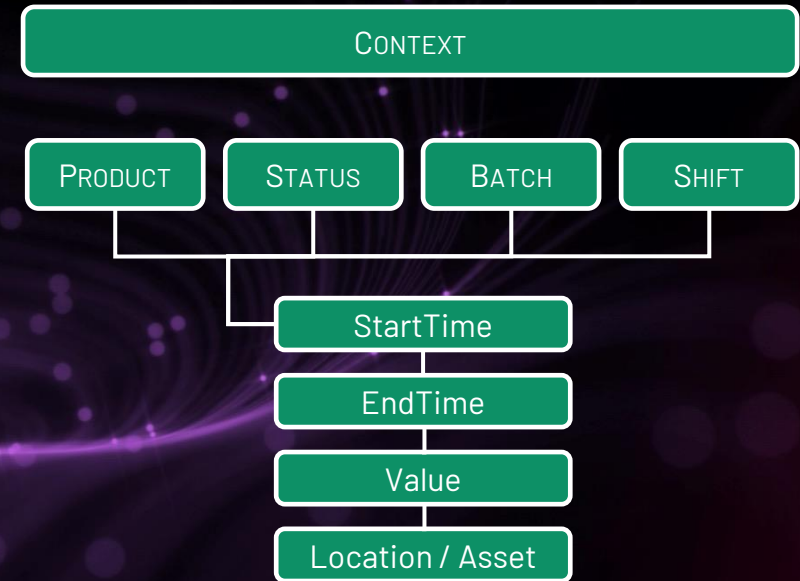
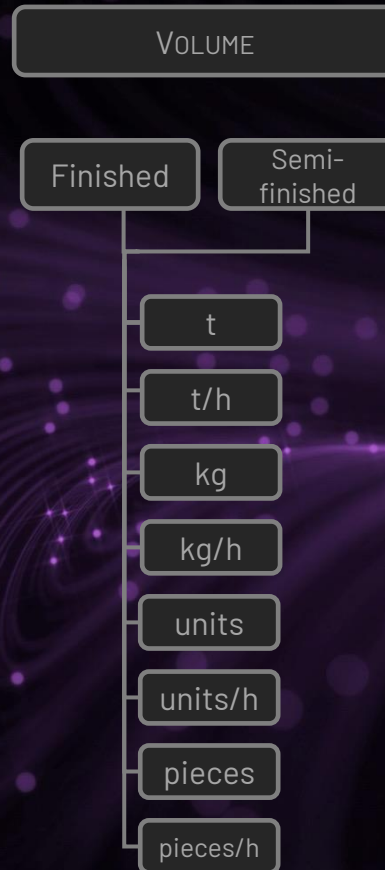


*Minimum data requirements:*  
 >= 1 Context data type available  
 >= 1 Energy data type measurement  
 Preferably volume measurements





# DATA SUPPORTED BY EMS



*Minimum data requirements:*  
 >= 1 Context data type available  
 >= 1 Energy data type measurement  
 Preferably volume measurements





1

LOG

2

COLLECT

3

PREPARE

4

TRANSFORM

5

ANALYZE

ANALYTICS FOR INDUSTRY | AZURE-BASED ENERGY MONITORING SYSTEM



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED ENERGY MONITORING SYSTEM.



ANALYTICS  
FOR INDUSTRY

4

HOW

1

LOG

2

COLLECT

3

PREPARE

4

TRANSFORM

5

ANALYZE



SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S CLOUD-TECHNOLOGY BASED [ENERGY MONITORING SYSTEM](#).



**ANALYTICS**  
FOR INDUSTRY

4

HOW



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**ANALYTICS**  
FOR INDUSTRY



5

NOW

~~WASTEN~~



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**ANALYTICS**  
FOR INDUSTRY



5

NOW

~~WASTEN~~

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Out-of-the-box insights into your plant's energy efficiency, costs and CO2 footprint.

Insight into energy consumption has resulted in these savings

5%

Gas

8%

Water

11%

Electricity

10%

Steam



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**ANALYTICS**  
FOR INDUSTRY

# FAQ



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**ANALYTICS**  
FOR INDUSTRY



# FAQ

- ① What options are there to provide data to the system?
- ② Till what extent can EMS be customized?
- ③ What if we don't have all the required data available?
- ④ Is EMS also available On-Premise?
- ⑤ Is it possible to use our own defined sustainability targets in the system?
- ⑥ How easy is it to add new data (tags) to the system? Can we do this ourselves?
- ⑦ Can EMS also be deployed in our company's private cloud?
- ⑧ What data export options does the system have?
- ⑨ Can EMS data be used for Advanced Analytics (AI or ML) purposes?
- ⑩ How is my EMS configuration updated?





SLASH ENERGY COSTS AND CARBON FOOTPRINT WITH AVEVA'S  
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## CONTACT DETAILS



# Questions?

Please wait for the microphone.  
State your name and company.



# Please remember to...

Navigate to this session in the mobile app to complete the survey.



# Thank you!

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