

Power Electricity Management with Actionable Insights Using SAP Leonardo

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Severstal Skif

Key Figures

11,7 M tn
Steel sold
2017

\$0,6 B
CAPEX
2017

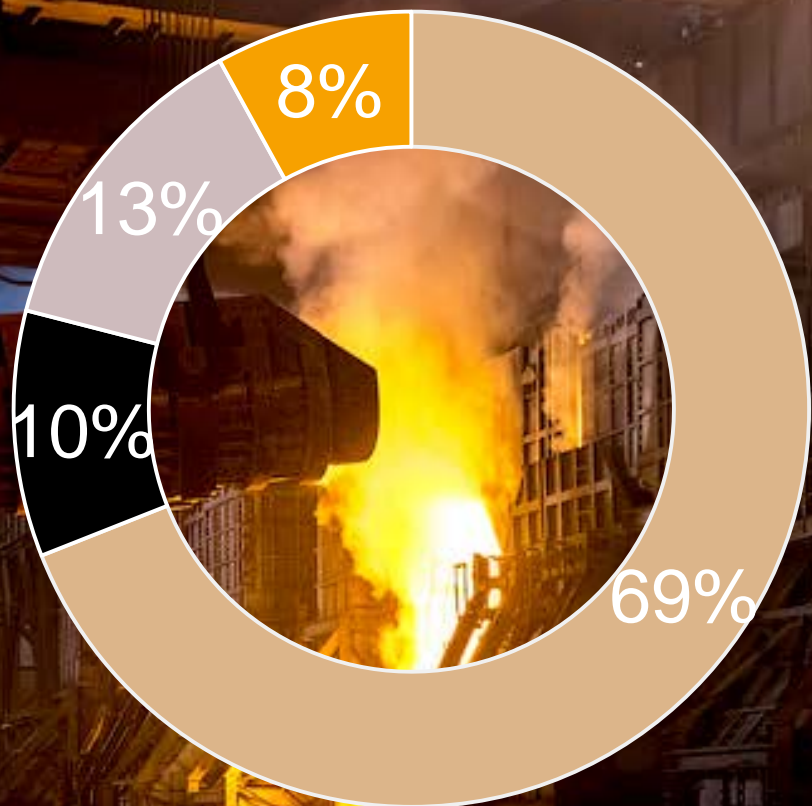
50000
Employees

No1
in profitability



Why Electricity Management Matters?

Steel Cost Structure

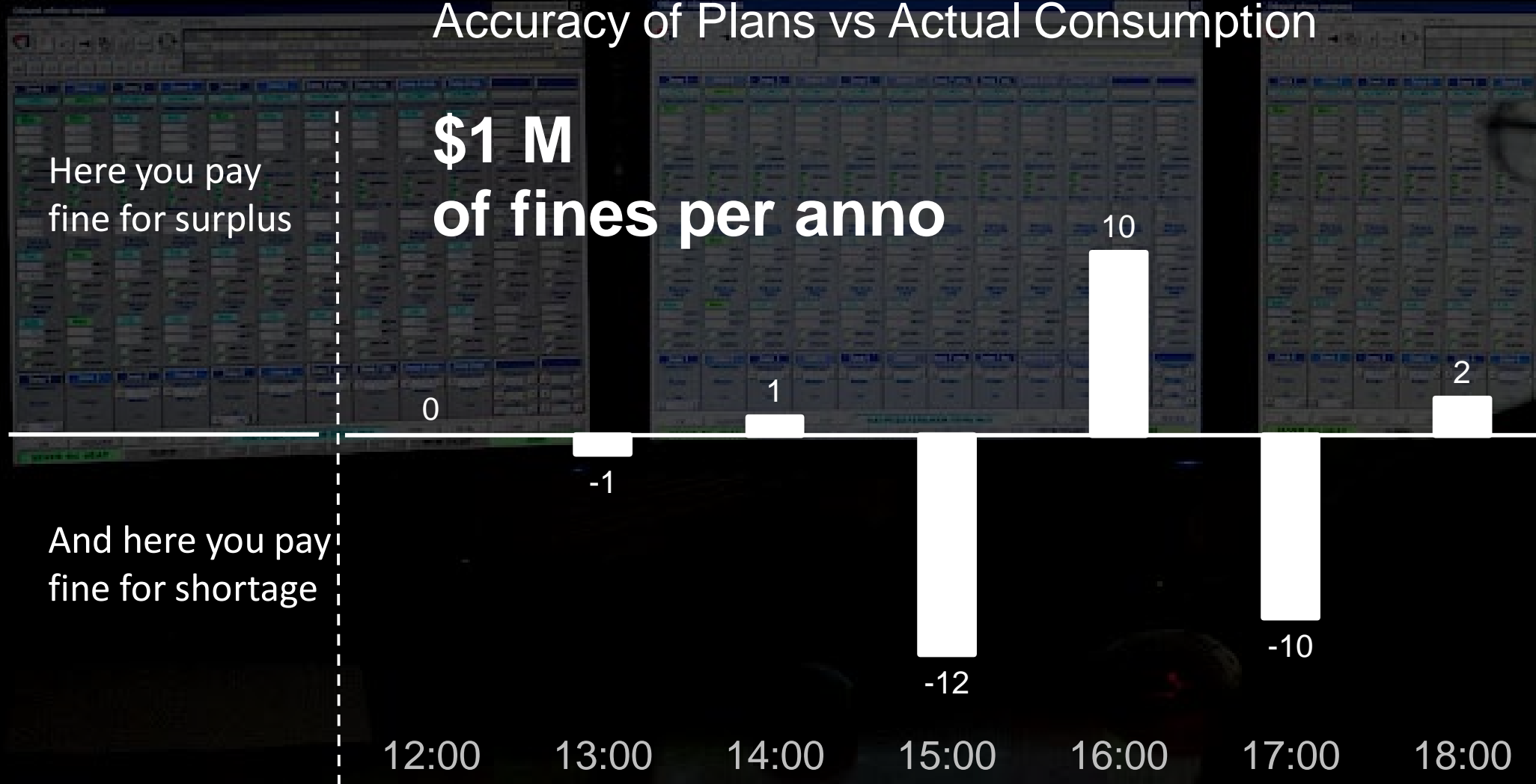


- Materials
- Electricity
- Labour
- Other

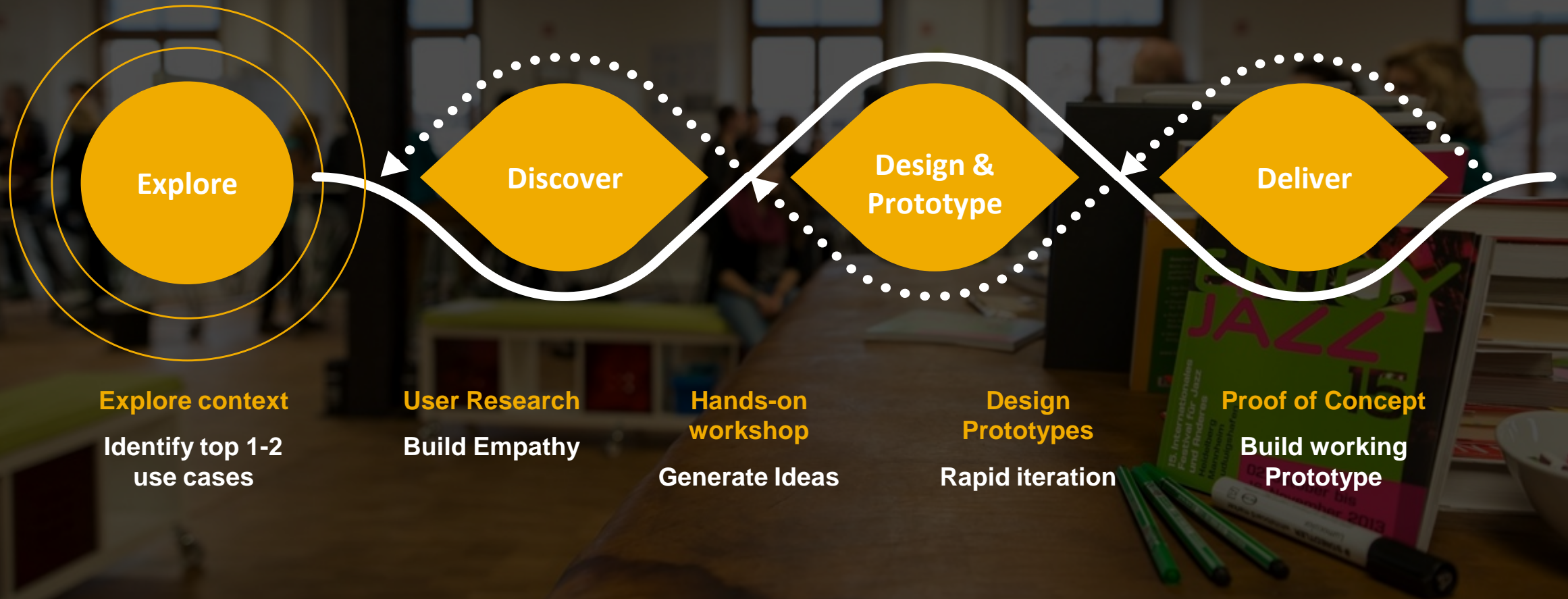
\$250-300 M per
anno
electricity costs

How it All Began

Accuracy of Plans vs Actual Consumption



Leonardo Design-Led Approach





Explore

A photograph of an industrial site in winter. In the foreground, a red bus with the number '088' is parked on a snow-covered ground. In the background, there are large industrial structures, including a tall tower and a large building with a glass facade. Two people are walking away from the camera on a snow-covered path. The sky is bright and overcast.

Go Onsite and
Discover
People Needs

Discovery

User Research & Synthesis Workshops

Feb, 5–9, 2018 Cherepovets and Moscow



Interview

Observe

Synthesize

Imbalances

Total consumption

500 kW



Individual consumers

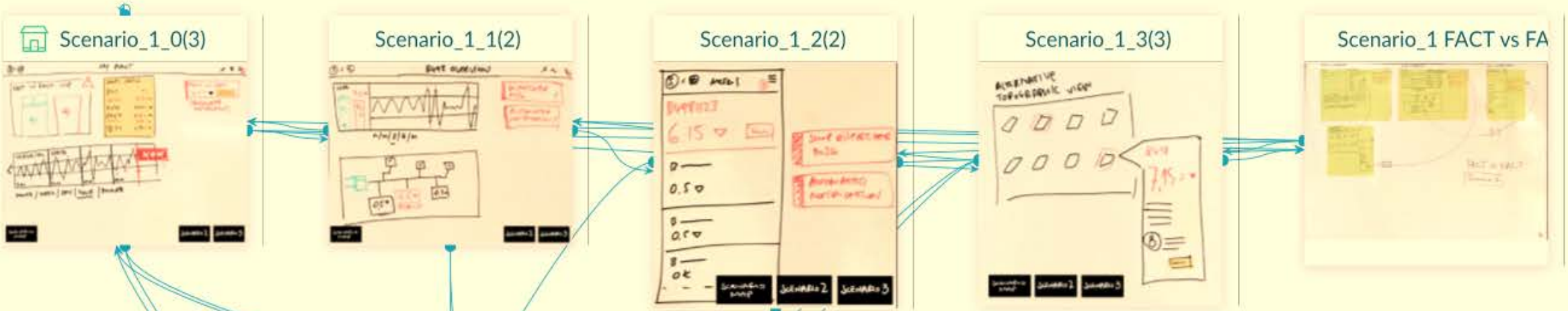
- 100 kW – Blast furnace
- 100 kW – Scrap yard
- 100 kW – Rolling shop
- 100 kW – Coating shop

What?
Where is my century?!

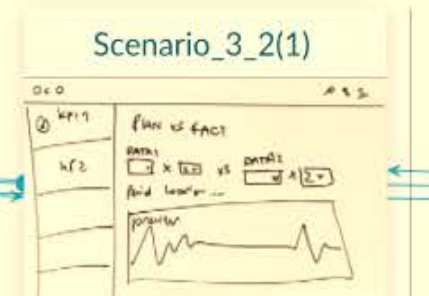
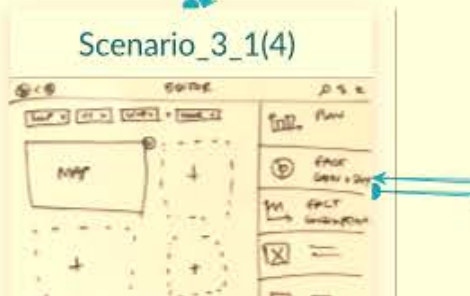
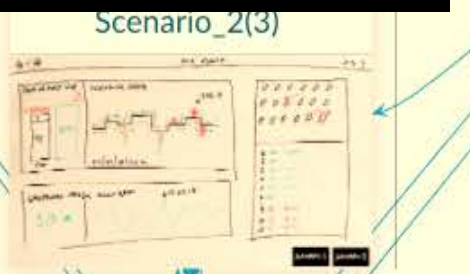
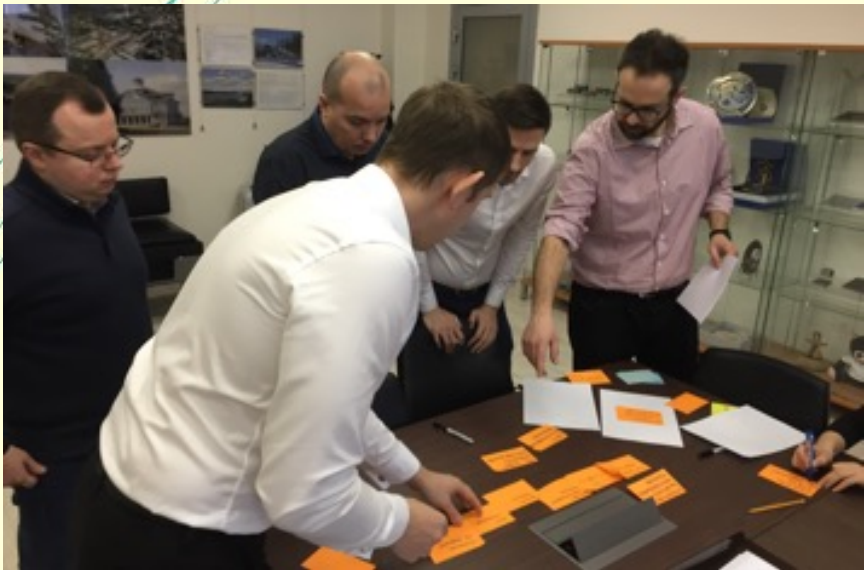
Imbalance of Actual Consumption



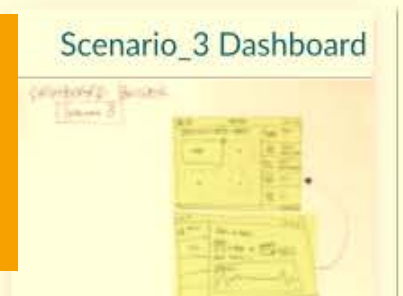
\$12 M
of losses per anno
through the imbalances



Ideate & Iterate



From idea sketches on paper to prototype on SAP BUILD



High-Fidelity SAP Fiori Design Prototype

Notifications monitor

Organizational structure

Adapt Filters (2) Go

Search

Priority
Critical

- Workshop 1
- Workshop 2
 - WS2 Area 1
 - WS2 Area 2
- Electrical plant 1
 - EP Area 1
 - Main Substation GPP-12
 - MS Cell
 - Substation PS21,22
 - Cell CH10
 - Workshop 5
 - Workshop 7

Notifications

Date & time
26.04.2018

Δ 3.75% Deviation fact vs fact Critical	
GPP-12	1d 23h 35m
Georgy Lukashenko	29.8K RUB
Generic anomaly Critical	
E10011S0200100	3h 18m
Dmitry Borozov	12.5K RUB
Δ 1.5% Deviation plan vs fact Critical	
GPP-12	1d 23h 35m
Georgy Lukashenko	55.0K RUB
Meter disconnected Medium	
CI.3	1d 23h 35m
Elena Petrova	3.2K RUB
Energy delivery stopped	
CI.3	1d 23h 35m
Elena Petrova	3.2K RUB
Generic anomaly Critical	
E10011S0200100	3h 18m
Dmitry Borozov	12.5K RUB
Δ 1.5% Deviation plan vs fact Critical	
GPP-12	1d 23h 35m
Georgy Lukashenko	55.0K RUB

Δ 3.75% Deviation fact vs fact Critical

GPP-12

↗ **20.75** mWh
1d 23h 35m

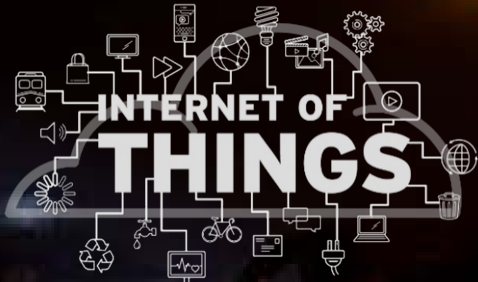
Cost	Target	Deviation
29.8k RUB	20 mWh	+3.75 %

Analytics Meters Contacts

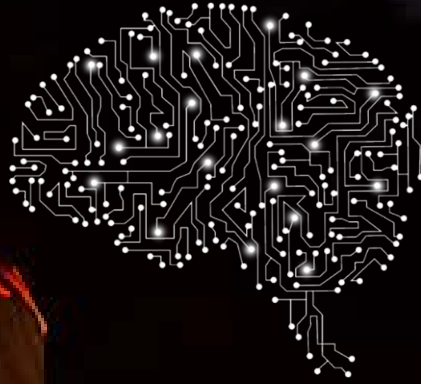
Deviations (2) Planned generation

Time	Deviation (%)
9:00	10%
10:00	17.5%
11:00	8.2%
12:00	7.8%
13:00	6.5%
14:00	2.0%
15:00	6.8%
16:00	7.8%
17:00	6.2%

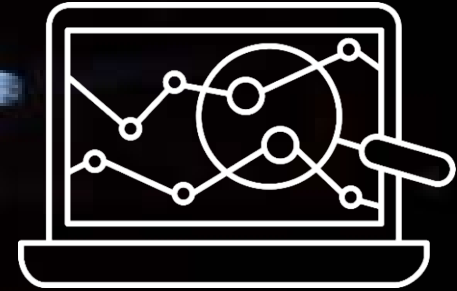
Why SAP Leonardo



Industrial
IoT



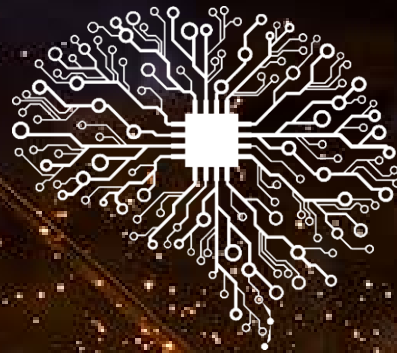
Machine
Learning



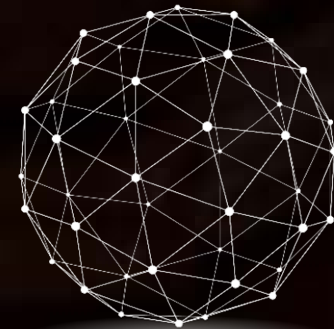
Ad Hoc
Analytics



Design
Thinking



Big Data



Blockchain

Организационная ...

search

Приоритет:

Критичная

Небалансы

Потребители

Энергосистема с субаб-ми

Генераторы

Генерация ОАО Северсталь

Регуляторы

Тревоги

Дата&Время:

MMM d, y - MMM d, y

Контроль стандартного отклонения (Z-scoring) **CRITICAL**
29 May 2018 21:00
136.86k RUB

Небалансы
Костенко Андрей

Контроль стандартного отклонения (Z-scoring) **CRITICAL**
29 May 2018 20:30
121.09k RUB

Небалансы
Костенко Андрей

Контроль стандартного отклонения (Z-scoring) **CRITICAL**
29 May 2018 20:00
132.56k RUB

Небалансы
Костенко Андрей

Контроль стандартного отклонения (Z-scoring) **CRITICAL**
29 May 2018 19:30
124.32k RUB

Небалансы
Костенко Андрей

Контроль стандартного отклонения (Z-scoring) **CRITICAL**
29 May 2018 19:00
-2140.94 RUB

Небалансы
Костенко Андрей

Контроль стандартного отклонения (Z-scoring) **CRITICAL**
29 May 2018 18:30

No data for this meter

0 mWh

Стоимость отклонения

Цель Отклонение

0 RUB

0 mWh

0%

АНАЛИТИКА

СЧЕТЧИКИ

КОНТАКТЫ



СЧЕТЧИКИ

ID	Отклонение	Потребление	Место установки	Статус
No items found. Check the search and filter settings.				

КОНТАКТЫ

Костенко Андрей:
Руководитель
департамента
безопасности

Deliver
as joint team

Standard *

Adapt Filters (2)

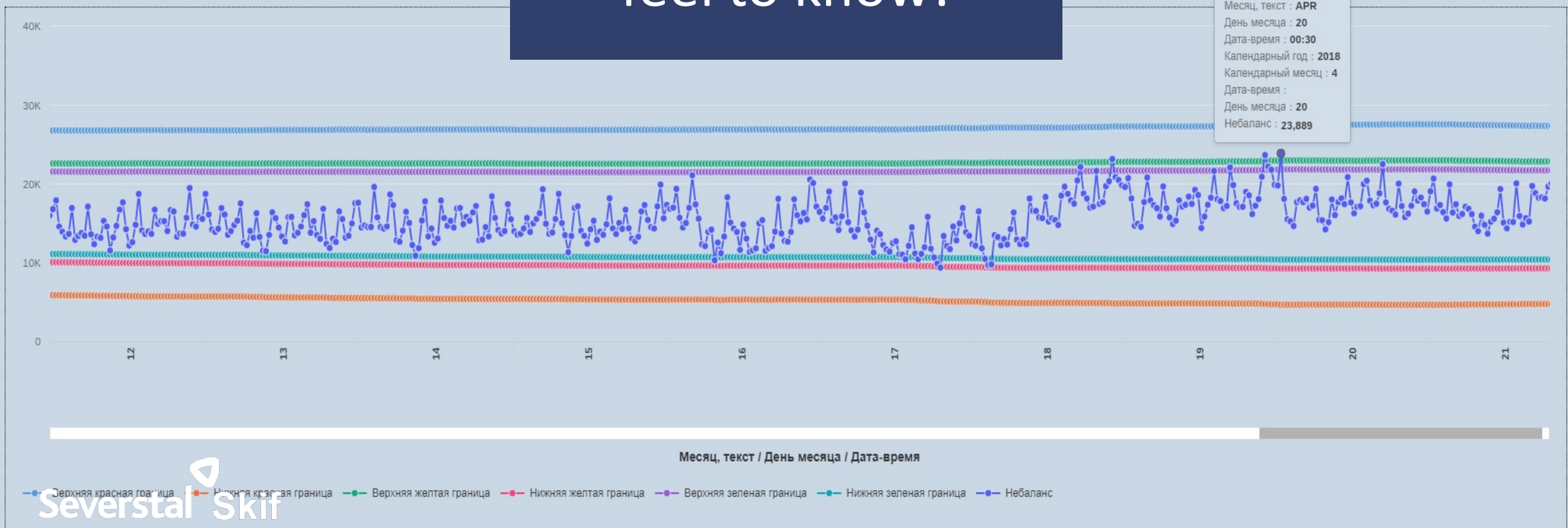
Сумма потребления за день by День н...



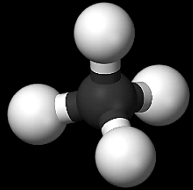
FRIDAY MON... SATU... SUND... THUR... TUES...

A great step from feel to know!

Месяц, текст / День месяца / Дата-время



What is Next



Liquid Natural Gas



Industrial oxygen



Inert gases

\$10 M

additional per
anno

imbalanced

Thank you!
We would be glad to welcome you at Severstal!



Severstal Skif