

NOMINATION

Smart energy management system (SEMS)
Environmental deep tech

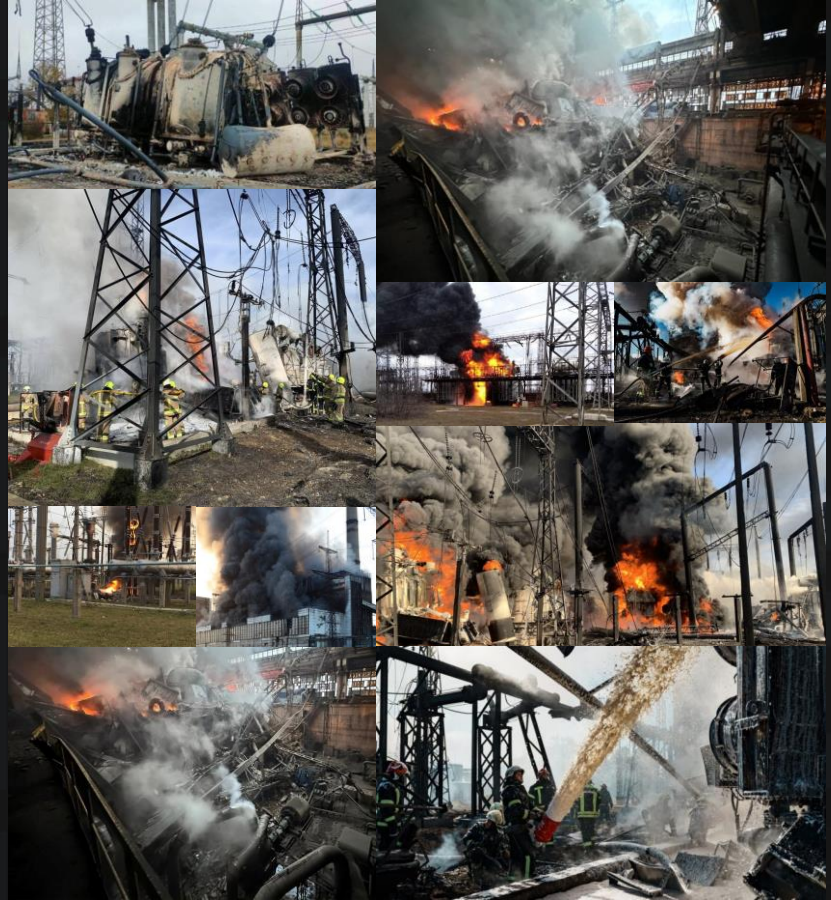


Origin of Idea

Since October 2022, the Ukrainian power system has suffered from 1,200+ russian missiles.

60% of Ukrainians stayed without electricity, every hour including all critical facilities.

This disaster gave birth to the project idea.

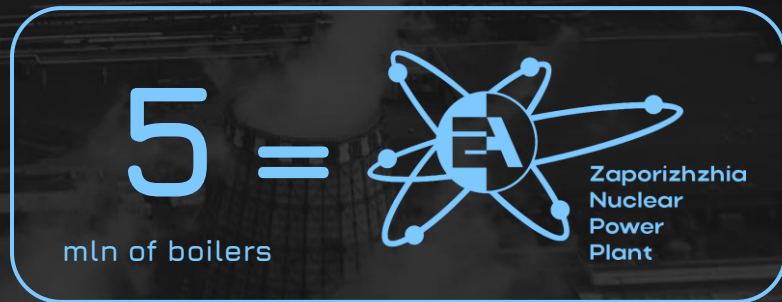


How did it all started?

More than 5 million boilers in Ukraine collectively consume more than 6000 MW.

This is equal to the capacity of the Zaporizhzhya nuclear power plant.

It is the largest nuclear power plant in Europe and the third largest in the world by total capacity.



6000 MW

What is it all about?

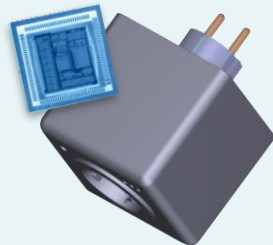
NomiON – is a smart energy management system (SEMS), that automatically analyzes energy usage patterns and intelligently determines which boilers can be turned off to reduce peak energy consumption.

NomiON does *not require the involvement of a human specialist* to set up the controller. Everything is done automatically both in hardware and software parts of system.

Plug and play



Plug the boiler
in the controller



Plug the controller
in the socket



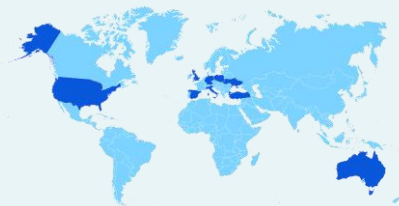
Once powered
on, the boiler
becomes
controllable
through the
software.

Challenges

Thermal Power Plants (TPP) and Combined Heat and Power (CHP) stations are among the world's largest contributors to CO₂ emissions, primarily due to their extensive use of gas and coal for electricity generation. Simultaneously, TPP and CHP play a crucial role in stabilizing the power grid during peak demand periods.

The potential use of SEMS in some countries:

- USA
- Australia
- Germany
- Turkey
- Great Britain
- Italy
- Spain
- Ukraine
- Poland



The SEMS main purpose is to optimize the use of electricity and reduce CO₂ emissions worldwide



To reduce CO₂ emissions
by 25 600 000 tons
annually

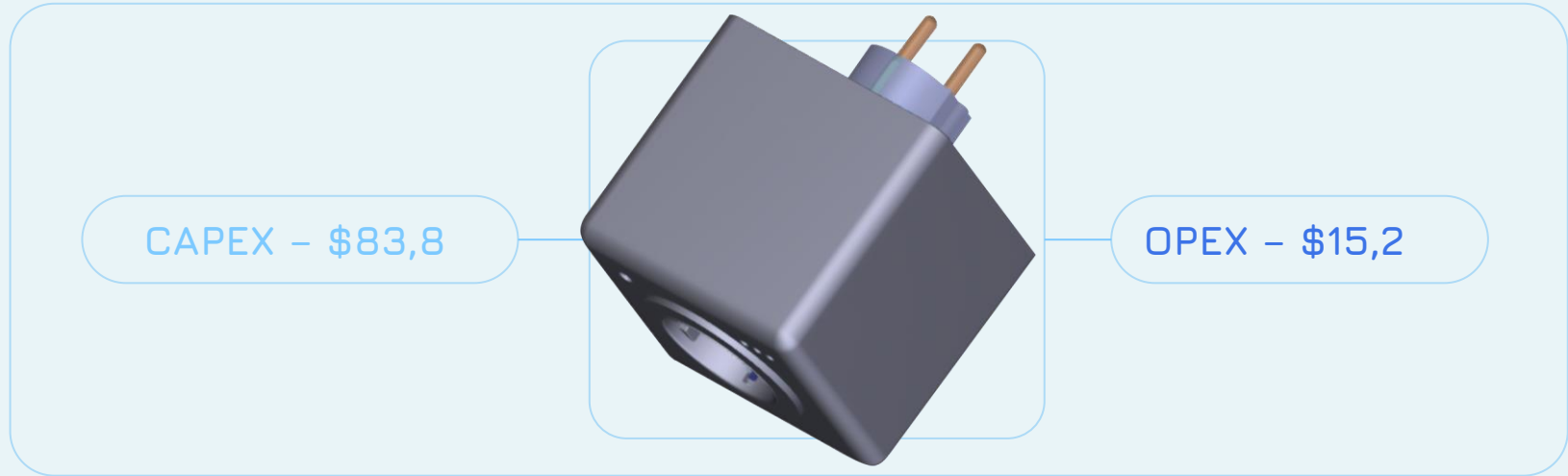


To reduce consuming
of coal by 10 900 000 tons
annually



To reduce gas consumption
by 249 750 000 c.m. annually

One device with the software costs



At the same time, each device reduces emissions by

1.5 tons CO₂ per year

CO² emission reduction potential in US



7,2 mln

Numbers of boilers
under management calculated
based on the power of 2 kW

Generation: 4 406 TWh

Electricity consumption for
water heating: 173 TWh

Volume of boiler management per year
(300 days of 6 hours): 8,7 TWh

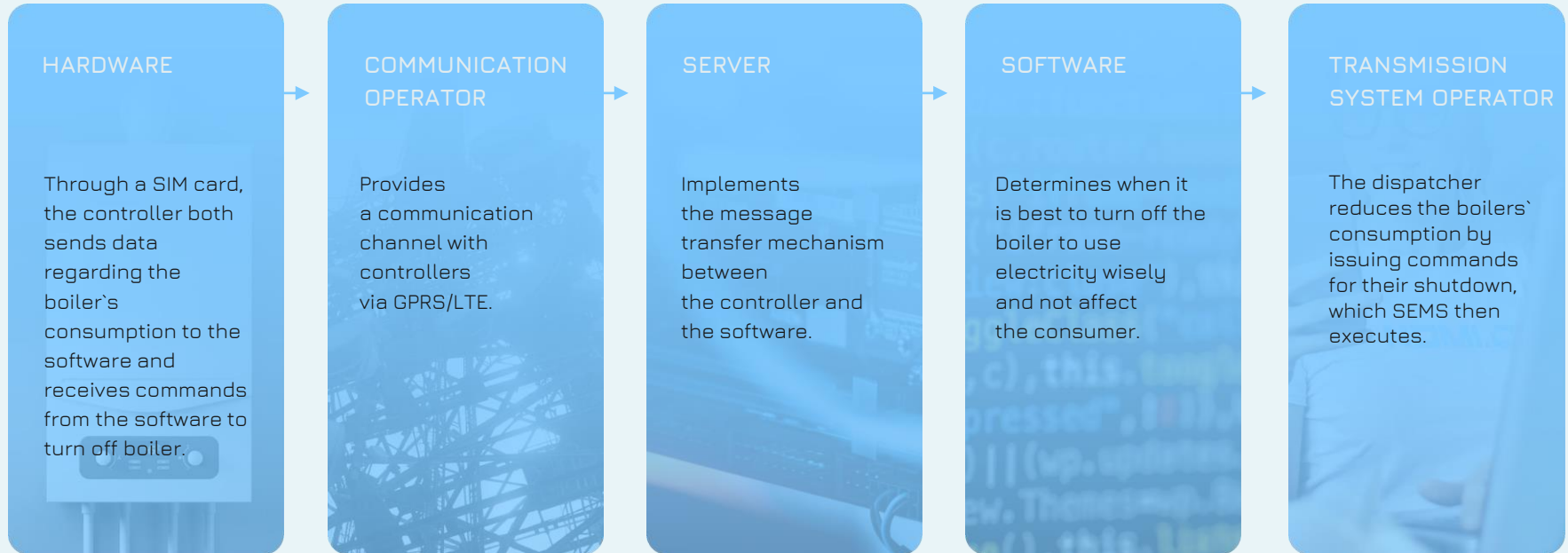
Savings effect on coal-fired
power generation:

5 millions t/year

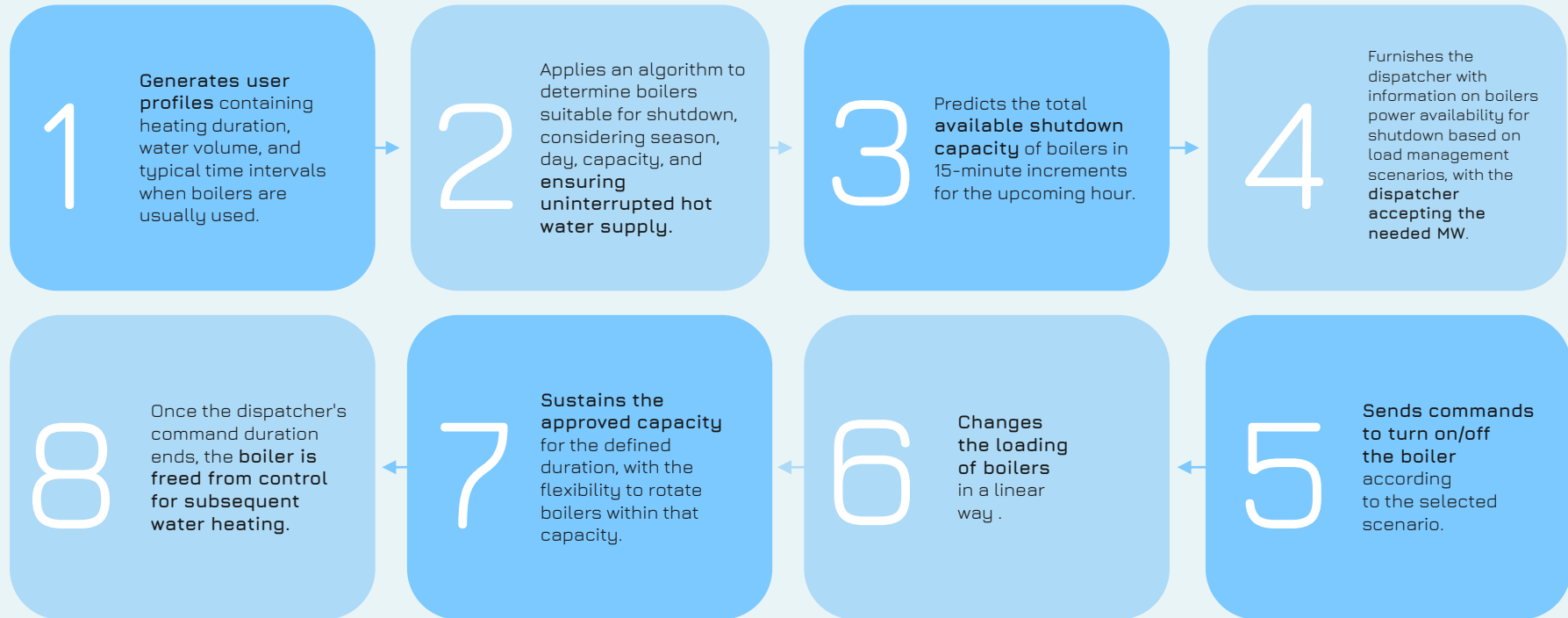
CO₂ emissions reduction:

11 millions t/year

Technical architecture of SEMS



Operating principles of SEMS



Impact

NomiON will help to adjust the energy consumption of any heat storage devices in your home or business, thereby reducing fossil fuel consumption, **reducing CO2 emissions and lowering energy costs.**



Environmental

Global decarbonization –
reduction of CO²
emissions.



Social

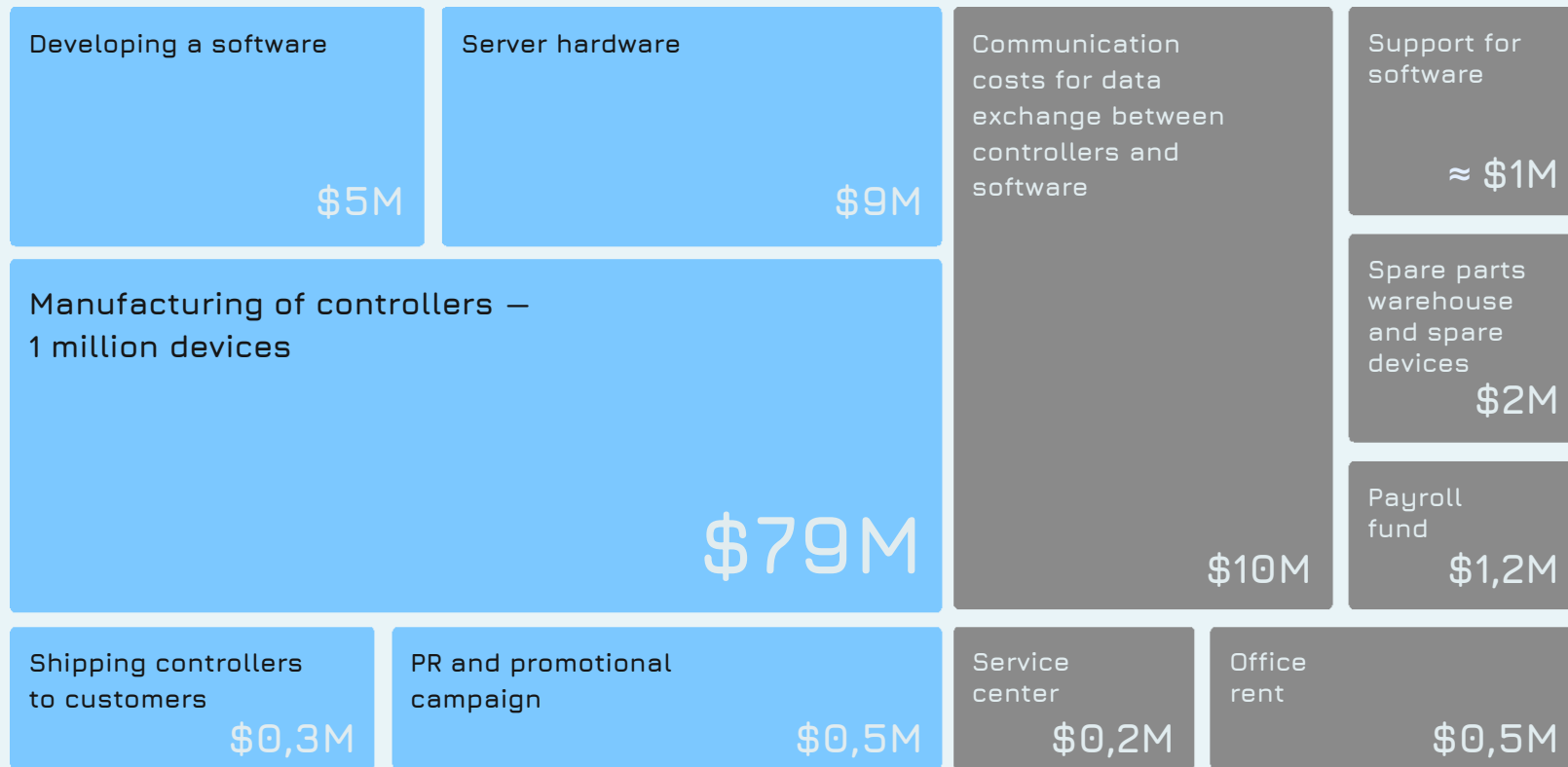
Avoid humanitarian
catastrophe caused
by russian attacks
on power facilities.



Economic

Reduction in electricity
prices on the wholesale
market.

Financial needs – \$99M



CAPEX – \$83,8M

OPEX – \$15,2M

Roadmap

Fundraising for a pilot stage

First stage of software development

Preparing technical documentation: producing first 10k devices, distribution to consumer

Pilot testing of first 10k devices

Summarizing the interim results based on testing

Fundraising for scaling the project

Second stage of software development

Integration into the electricity market

Start of serial production

Scaling up to 1 million devices

18 MONTHS

Expected results

Development of SEMS will enable centralized control of heat storage devices energy consumption based on the needs of the power system.

In general, the implementation of SEMS can lead to improved energy efficiency, resource savings, and reduced environmental impact, making it potentially beneficial for various segments of society and the economy.



Ukraine will become a testing ground for proof-of-concept

Scale potential

The project is not only about boilers - we can also control pool water heaters, underfloor heating, and other heat storage devices in sports complexes, homes, hotels, etc.

Target audience:

- governments
- businesses
- electricity suppliers/utilities



Our team



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NOMI.ON

Mission to no emission

THANKS FOR YOUR ATTENTION