

**Low-cost projects in the energy sector, for oil-fired boilers of any design - quick installation, long work, own maintenance. An example is the triple efficiency of the TRGA fuel homogenizer, with a [new tax](#) from the IMF.**

**Quote** - "The International Monetary Fund (IMF) was in favor of the idea to introduce a tax on carbon dioxide emissions. This is stated in the IMF report, dated May 3, 2019. "In order to realize the goals of the Paris Climate Agreement, carbon dioxide emissions by 2030 need to be reduced by one third, and a charge of \$ 70 per ton of carbon dioxide emissions will be introduced," explained the head of the IMF, Christine Lagarde, and director of fiscal policy organization Vitor Gaspar. "



What gives the installation of fuel homogenizer TRGA on all boilers, which use heavy fuel oil (mazut)? (alcohol, sugar, brick, glass, metallurgical, mining and processing plants, cardboard factories, power plants, etc.)

1. **Effect 1 - net fuel economy**, due to improved combustion.

- minimum (on pure quality fuel oil) = **2.44%**.
- academically proven maximum (on pure quality fuel oil ) = **4.1%**.
- non-academic tests (emulsion burning water / fuel oil) = **8%**.
- on poor quality fuel - more fuel savings.

In view of increasing the efficiency of boilers with their size and new technologies = **3%**.

2. **Effect 2 - reduction of harmful** emissions.

2.1. **Transformation of sediments and condensate water into fuel** ( 0.5-5% ) grinding clots and mechanical impurities to burn them completely in the boiler (1-1.5%), no costs for cleaning tanks and sludge disposal (equivalent to 0.3% of fuel volume)

Take this figure equal to **1%** of the total fuel.

**Total net fuel savings of at least 4% of the total fuel.**

## 2.2. Reduced emissions into the atmosphere.

1 ton of HFO releases approximately 3.07 tons of CO<sub>2</sub>.  
(calculation of NO<sub>x</sub> emissions WITH, SO<sub>2</sub> will be later).

## 3. Effect 3 - lowering operating costs.

These are the costs of cleaning filters, nozzles, heat exchangers (the frequency of cleaning increases about 2 times), the cost of a new boiler lining, repair of pumps and replacement of heat exchangers due to sulfate corrosion. This figure is individual, therefore, in this text is not evaluated.

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**Example 1 - a sugar mill boiler** that burns 2 tons of HFO per hour.

HFO burned = 2 tons HFO p/h \*30 days \*10 months      **14,400 tons p/ year.**

Net fuel economy will be (4%) = 576 tons per year or      = \$170,000.00

The savings with the new tax will be 576 tons \*3.07 \*\$70 = \$123,782.00

**Economic effect total = \$293,782.00**

**Example 2 - one boiler on mining factory** in the aluminum industry,  
which burns 8 tons HFO p/h or **57,600 tons per year.**

Net fuel economy will be (4%) = 2,304 tons per year or      \$680,000.00

The savings with the new tax will be 2,304 tons \*3.07 \*\$70 = \$495,129.00

**Economic effect total = \$1 175,129.00**

**Example 3 - one unit at a large power station,**

which burns 20 tons of fuel oil p/h. or      **144 000 tons per year.**

Net fuel savings will be (4%)      = \$ 1,700,000.00

The savings on the new tax will be      = \$ 1,230,782.00

**Economic effect total = \$2 930 782.00**

\*) The calculation was made with price 300 dollars per/ton of fuel oil.

Details about emissions here.

<https://www.linkedin.com/pulse/fuel-economy-reduced-emissions-andrew-ruban/>

Presentation for medium and large boilers here.

<http://www.energy-saving-technology.com/documentation/trga%20heater%20en%20mail.pdf>

<http://www.energy-saving-technology.com/documentation/trga%20heater%20ru%20mail.pdf>

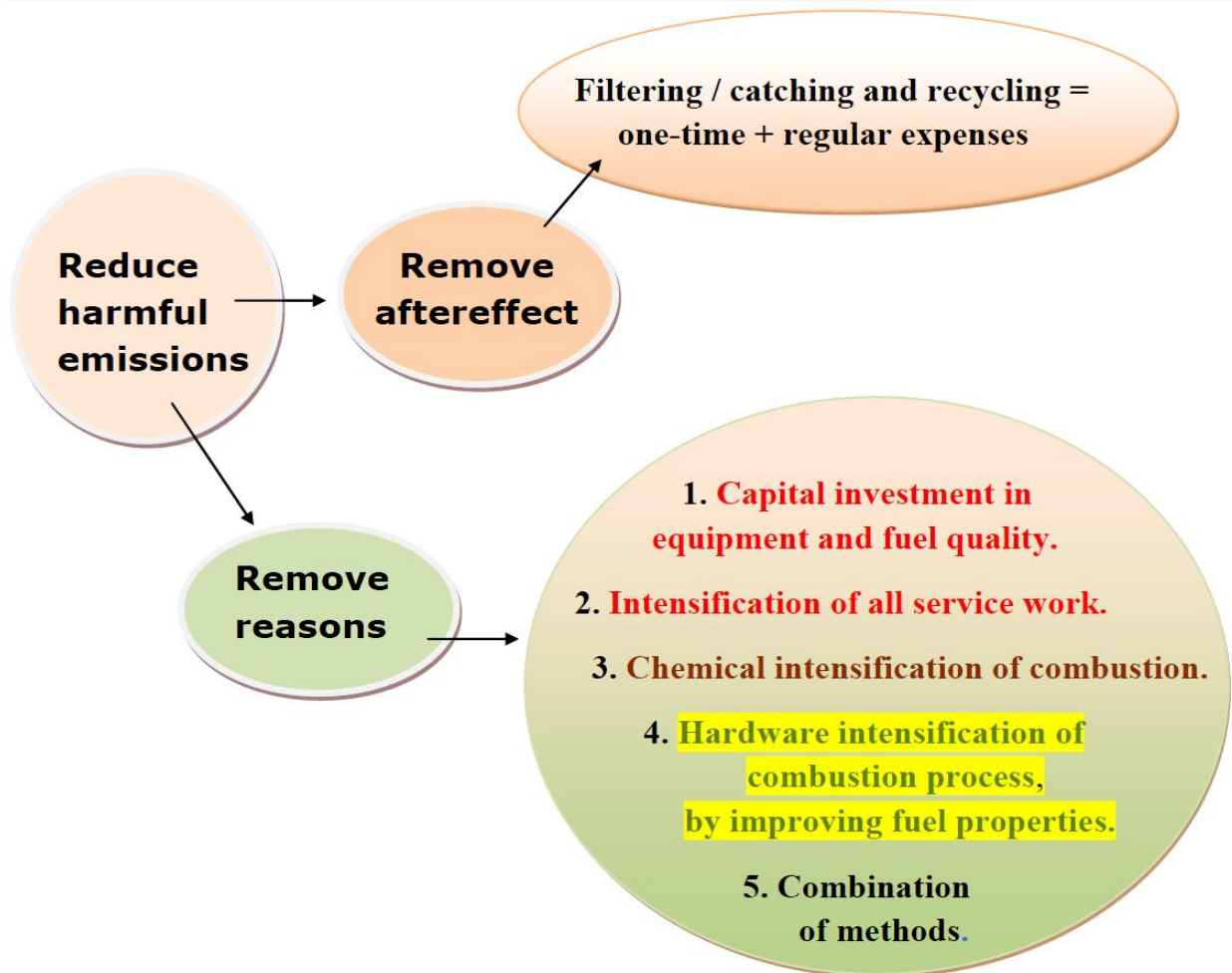
Presentation for small boilers here.

<http://www.energy-saving-technology.com/documentation/small%20boiler/small%20boiler%20eco%20en.pdf>

<http://www.energy-saving-technology.com/documentation/small%20boiler/small%20boiler%20eco%20ru.pdf>

What do we offer ?

We offer - **to eliminate the causes** of harmful emissions and excessive fuel consumption, but does not deal with their consequences.



How does it look? [One example here.](#)



And it works for [ship engines.](#)

## How does it work on engines?

(ship engines and power plants on diesel generators of high power)

**The overall results of the use of ship's modules TRGA testing on ro-ro ship Larkspur "from 19 to 22 08. 2012**

	<b>Operation on the standard fuel</b>	<b>Using module TRGA only on the buffer tank</b>	<b>Using module TRGA only on the settling tank</b>	<b>Using module TRGA on the buffer tank and on the settling tank</b>
<b>The main observed effects</b>				
<b>Flue gas temperature St. (C)</b>	325 326 337	356 356 357	353 347 353	<b>368</b> <b>370</b> <b>370</b>
<b>Level CO</b>	100%	- 3.8 – 6.4 % -5.27 – 6%	-6.47 – 10.39%	<b><u>-10 – 14.97 %</u></b> <b><u>-12.34 – 13.67</u></b>
<b>Visual amount of smoke length in meters of water followed</b>	100% at startup – a lot of smoke during the driving 30-80 meters	at startup – less for 30% during the driving 5-40 meters	<b><u>at startup – less for 40%</u></b> <b><u>during the driving 5 - 10 meters</u></b>	at startup – less for 30% during the driving 5 - 20 meters
The amount of fuel sludge from the separator	0.692 tonnes per day  Of which the fuel is 415 kg	0.692 tonnes per day  Of which the fuel is 415 kg	0	<b>0</b>
	1	2	3	4

### **Additional effects of the installation of ship modules TRGA**

1. Additional heating fuel. **TRGA modul provides heating fuel in a buffer tank on the temperature of 85-90 degrees**, what reduces the viscosity of the fuel, using fuel or high binding in the case of poor fuel heaters lining the resin, which is the build-up. **TRGA module provides heating fuel in settling tank so that the fuel is heated to 5 ° C in a streaming through the module.**
2. Reducing the amount and size of solid particles in the fuel directly affects the speed and reduce the amount of fuel sludge to collection tanks for fuel mud tank and, in addition to direct fuel saving, provides cost generated by the fuel acquisition sludge by the port services.
3. Reducing the amount and size of solid particles in the fuel has a direct impact on the reduction of wear separator and saving in the cost of its repair and maintenance.

Here we see **different options for using our on-board fuel modules** - on a setting tank, on a buffer tank, and both at the same time. And accordingly, an **increase temperature of the outgoing gases by 8.2, 6.68, 12.1%**. It means that it is possible to reduce the standard consumption of ship fuel until these values return to the standard. We estimate the average fuel economy of at least 4%, which means:

**Example 4 - one double-decker ferry 154 m.,**

which burns 24 tons of fuel oil per day or 7200 t / year.

Net fuel savings will be (4%) = 288 tons per year or \$ 86,400.00

You save on a new tax \$ 60,480.00

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Total **\$ 146,880.00**

It is only ONE of the tens thousands of medium-sized ferries around the world ...  
or 864 tons of CO<sub>2</sub>.