



# Assembly and maintenance: efficiency, reliability and safety.

Ilya Oshkin,  
Business development, Russia/CIS and Baltic States

Machine building and engineering committee AEB, Moscow  
17<sup>th</sup> of March 2010

**DOW CORNING**

*We help you invent the future.™*



# Topics

- Dow Corning is ...
- Why is the right equipment maintenance so important?
- Examples from different industries:
  - Electricity
  - Metallurgy
  - Oil & Gas
  - Food & Beverage
- How to reduce Maintenance Costs and improve efficiency?

## The silicone technology pioneer...

- A joint venture of The Dow Chemical Company and Corning Inc.
- Organized to explore the potential of the silicon atom in 1943
- Strong and healthy financially: \$5.09billion sales 2009
- 7'000 products, 10'000 employees, 25'000 customers

## Innovation is at the core of what we do

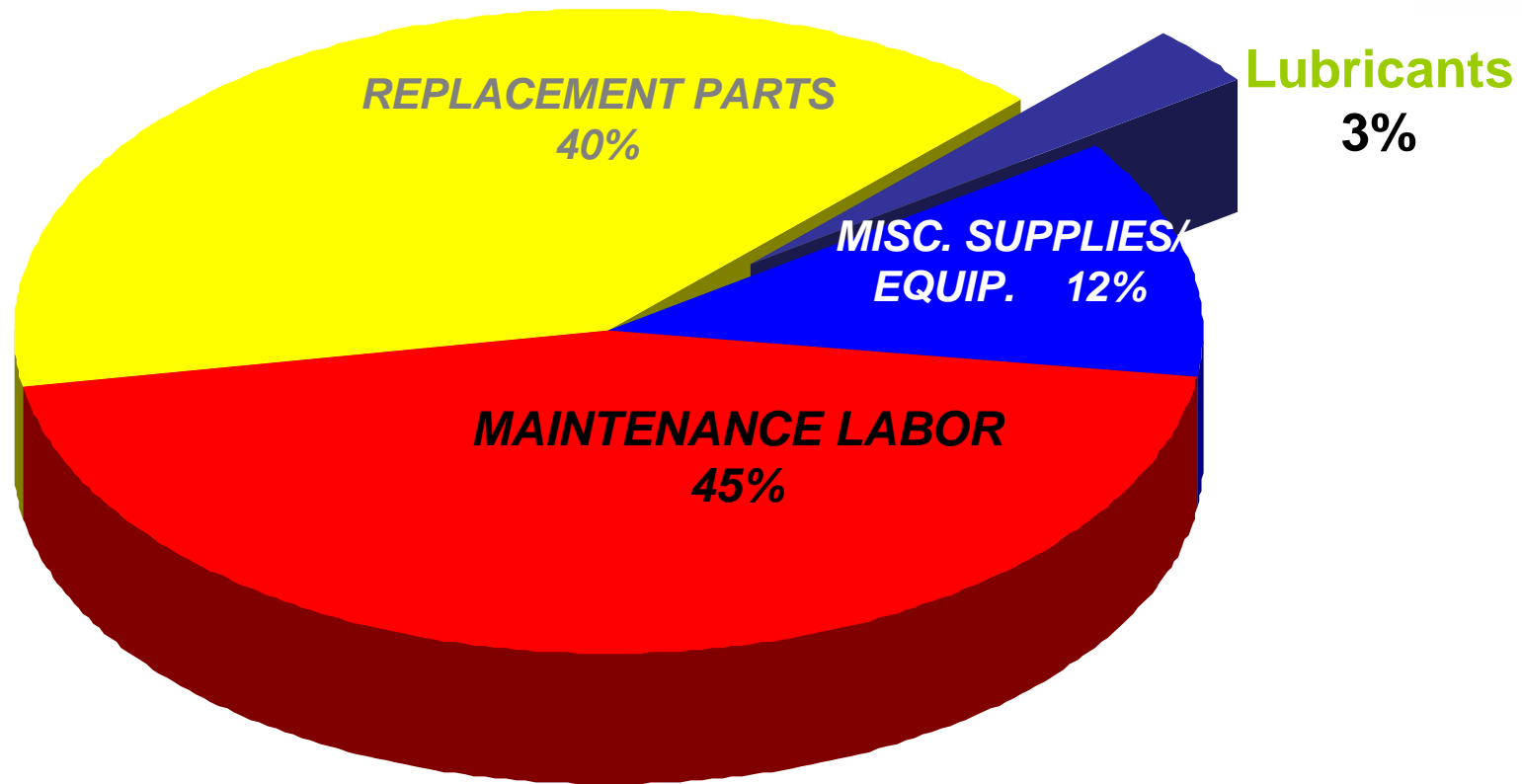
- 15-20% of our products and services are less than five years old
- 4-5% of sales is spent on R&D
- Approximately 50% of R&D spend on sustainability-related projects
- More than 4,000 active patents
- Beyond products -> solutions

# Right maintenance is very important



- Even with very nice equipment you can be non efficient because of maintenance job!
- Equipment maintenance questions for Russian economy development are not less important than infrastructure.
- Can you imagine usage of vegetable oil instead of motor oil in your car?
- Can you imagine usage of cheap standard grease in the equipment instead of performance lubricants?

# Typical Maintenance Budget Breakdown



DOW CORNING

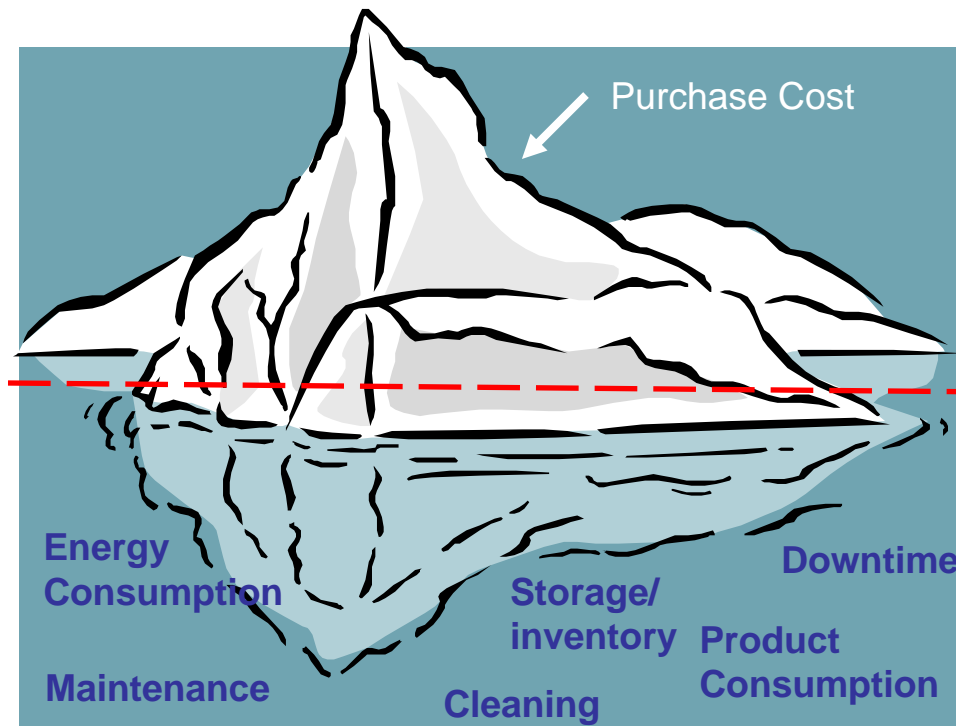
*We help you invent the future.<sup>™</sup>*



# Some of the primary needs we face in OE



- OEMs and Tier Equipment Suppliers only often see the purchase cost of the lubricant or sealant.
- Probing the customer on stated or unstated needs often reveals the true “return on the lubricant” they are looking for.



<i>Customers Perceived Cost</i>
Purchase Cost of Lubricant/Product

<i>The "real" cost</i>
<b><i>Purchase Cost and....</i></b>
Product Consumption
Energy Consumption
Equipment Downtimes
Storage and logistics
Cleaning
Maintenance

DOW CORNING

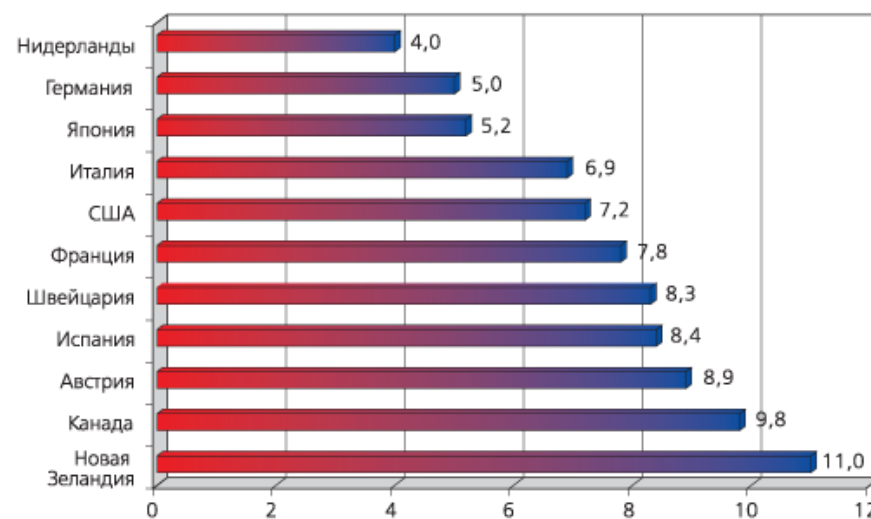
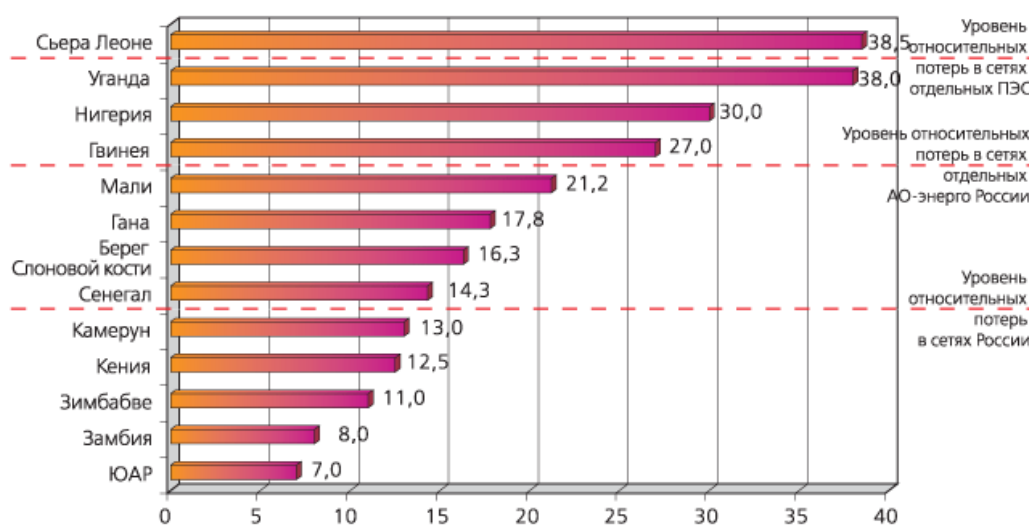
*We help you invent the future.™*

# Electricity



## Losses of electrical energy in Western countries and Africa\*

Dotted lines are related to different types of Russian electrical system



\* Magazine "Energy savings" №2/2005, Vorotnitsky V. and others

DOW CORNING

We help you invent the future.™

# Main reasons of damages in electrical energy\*

- Old equipment
- Equipment breakdowns
- Negligence of workers
- ...

\* Magazine "Energy market" №1/2006, Belobrov E.

maintenance!!!  
culture of equipment maintenance!!!



**MOLYKOTE**  
FROM DOW CORNING

*"We should create a single whole system of management in energy sector to improve energy savings and effectiveness of energy usage... and we should define people who will be personally responsible for realization of the program."*

**Vladimir Putin**, prime-minister of Russia. 16 Feb. 2010

<http://www.rian.ru/economy/20100216/209522323.html>

DOW CORNING

*We help you invent the future.™*



# Metallurgy



- Cost of equipment breakdown (to repair / to buy)
  - Cost of stop production
  - Cost of bearing
  - Cost of lubricant
- 
- Older equipment means higher maintenance costs
- 
- Lubricant is just lubricant?
  - Sealant is just sealant?

*“Pump breakdown has stopped Chelyabinsk Metallurgy Factory”*

<http://www.gazeta.ru/2005/11/23/last178930.shtml>

DOW CORNING

*We help you invent the future.™*

# One example from India

(can't change equipment? – change maintenance!)



- **Conditions** – Heavy Shock Loads, Dust, Vibrations and high loads
- **Concerns** – Daily relubrication schedule increases chances of human errors
- **Desired** – Weekly Lubrication Schedule.
- **Product Recommended** – *Molykote®* Long-term 2+.
- **Results** – Relubrication period extended to weekly within 3 months of application.



DOW CORNING

*We help you invent the future.™*

# Oil&Gas



- The most important segment for Russian budget
- Price for equipment is high
- Cost of every non-work hour is >1000\$
- Very aggressive environment
- Temperature range is -55°C...+40°C
- Ecological questions are very important



DOW CORNING

*We help you invent the future.™*

# Key learnings from desk research\*

- 70% of all rigs are worked-out (every 3 rig are elder than 20 years)
- Standard and Cheap Lubricants on market
- Mostly don't express any complaints
- Do Not want to change anything if it's working "normal"
- If somebody will recommend something – they might be would use it but they would not try to propose something new to really improve the operational effectiveness
- Easier to buy new equipment than to repair
- A lot of "inventors" at rigs (they solve problems by creating something new from nothing to maintain equipment)

*\*research was made by M.Zaytseva, Dow Corning*

# Selecting the Right Product First Time



- Product selected will impact the **total cost of ownership**
  - Equipment life time
  - Maintenance costs (parts, crew)
  - Environmental impact
  - Safety records of operations
- Critical to understand the elements that impact the equipment reliability
  - Being able to withstand extreme temperature
  - Resist chemical environment
  - Perform under high load





**MOLYKOTE**<sup>®</sup>  
FROM DOW CORNING

# Food and Beverage

- Lubricant material must endure mechanical, thermal and chemical loads in actual (or actually possible) service conditions.
- Lubricant material must have stable composition tested, approved and certified by qualified institution such as NSF, USDA, US FDA, etc.
- Material formulation must meet the following requirements: in case of incidental contact with final product in small quantity within permissible norms it will
  - NOT cause any harm to health;
  - NOT affect final product's flavor, nor colour, nor odor.

## Standards:

- NSF H1 Certificate – approve for contact between lubricant and final product
- NSF H2 Certificate – this lubricant use in food processing equipment is possible but without direct contact with final product.
- NSF St.51 – use in food industry equipment is possible
- NSF St.61 – use in potable water supply systems is possible



DOW CORNING

*We help you invent the future.™*

# How to reduce Maintenance Costs?



## ***Reduced Maintenance Costs***

- Longer lube performance = Longer change intervals
- Superior lube performance = Less breakdowns & replacement parts
- Oil analysis prevents premature change outs
- Less breakdowns = Less downtime = more profits



Are **maintenance people**  
HEROES because they **FIX**  
the problems?  
or are they  
HEROES because they **AVOID**  
the problem?



The information provided in this presentation does not constitute a contractual commitment by Dow Corning. While Dow Corning does its best to assure that information contained in this presentation is accurate and fully up-to-date, Dow Corning does not guarantee or warranty the accuracy or completeness of information provided in this presentation. Dow Corning reserves the right to make improvements, corrections and/or changes to this presentation in the future.

**DOW CORNING**

*We help you invent the future.™*