

EFFICIENT ELECTRICITY AT HOME**Ивахненко К.А.,****научный руководитель ст. науч. сотр. Каширина В.М.*****Сибирский Федеральный Университет******Институт управления бизнес-процессами и экономики***

Energy is the potential to do work of some kind – to move something (a car or a human), change something (from hot to cold), to activate something (lights or sound), or to stop something happening (brake). Energy cannot be seen and has no physical substance. We only know it is there because we can see its effects – heat, light, power – and we only value it for what it can do for us. Every one of us deals with energy on a daily basis and for nowadays can not even imagine our life and normal sustainable development of society without it.

Actually, a great deal of energy is wasted in our country in vain. Thus it is truly essential that we all adopt energy efficient behaviour. We use more energy than is necessary to fulfill our needs – either because of old and inefficient equipment, or because of bad habits.

Energy efficiency suggests using electricity more efficiently or in reduced amounts – in other words, doing the same with less. Technically speaking, energy efficiency is an improvement in practices and products that reduces the amount of energy necessary to provide energy services such as lighting, cooling, heating, manufacturing, cooking and transport.

In this very article we will consider the problem of saving electricity at home and ways of making your home energy efficient in terms of electricity.

In many parts of the world, the cost of electricity is rapidly increasing due to a variety of factors. One of the reasons is demand – as we acquire more power for different gadgets and gizmos; this not only means more electricity needs to be generated, but additional infrastructure must be built for transmission and distribution. Regardless of the reasons for electricity price increases.

Tariff for electric service of public company «Krasnoyarskenergosbyt»

Index	Measure of unit	Rate	
		From 01.01.2013 to 30.06.2013	From 01.07.2013
Within the limits of social standard electricity consumption			
One - part tariff	ruble/kWh	1,60	1,83
Beyond the social standard of electricity consumption			
One - part tariff	ruble/kWh	2,58	2,97

There are many things that we all can do that will cost us nothing to implement or very little to save energy at home today. Electricity efficiency not only increases the resilience and efficiency of our economy. In fact, saving electricity can save our money as we will cut down on costs of an electricity bill each month. Saving electricity is also important as producing electricity is damaging to the environment due to increased carbon emissions. Consequently it limits and reduces the impacts and hazards to human health of current energy use. Similarly it makes more available energy to provide supply to the remaining population and postpones the building of new power plants, freeing up capital for other investments. As we can see, there are a huge variety of advantages of efficient electricity.

If we take a keen interest in our household energy consumption level and monitor it before and after implementing some or many of the recommendations offered below, we will certainly be surprised at how our electricity consumption decreases as a result.

Our houses by 97% are supplied with individual electricity meters that allow us to pay only for the amount of recourses we consume, but not accordance with the standards of average establishment size that exceed a real consumption in many times.

Electric power supply	For one person	kWh per month	184-247 (depending on the number of rooms)
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Here are the standards of electricity consumption in 2010 in Krasnoyarsk.

1 kWh: what does it mean? You will need approximately 1 kWh to:

- Listen to the radio for 50 hours
- Shave with electric razor for 110 hours
- Leave the lamp of 60v switched on for 17 hours
- Watch colour TV for 12 hours
- Vacuum for 2 hours

So in this way the standards of electricity consumption allow you (with the norm of 6-8 kWh a day) to watch the TV all day long whilst listening to music and working on computer, at the same time doing some vacuuming with leaving all lighting equipment on. Undoubtedly, that figures are in fact miles (if not light years) apart from reality. That is why it is critical to have individual electricity meters in order not to overpay for resources you do not consume.

However, there is another question. How to cut on costs even with special devices measuring consumption and treat ourselves to energy efficient behaviour?

If we take a keen interest in our household energy consumption level and monitor it before and after implementing some or many of the recommendations offered below, we will certainly be surprised at how our electricity consumption decreases as a result.

A simple way of improving energy efficiency is to change behaviour:

- Make the most of natural light entering the house.
- Install a skylight to lighten dark areas in the day (instead of switching on a light).
- Turn off the light(s) when you leave a room – don't leave lights burning unnecessarily.
- Use local illumination when there is no need in general lighting. It can save approximately 16 - 17 kWh per month.
- Replace 'traditional' (incandescent) light bulbs (service life – 1000 hours) with energy efficient bulbs (service life – 6000-15000 hours) which last 10 times longer. They are more expensive than normal globes, but they pay for themselves by saving energy over their lifetime.
- Switch off equipment when not in use. Turn appliances off at the wall plug, rather than leaving them on standby as this can still draw about 20% or more of normal electricity use. (Examples are TVs, music systems, computers, phone chargers etc.) Also turn the geyser off when you go on holiday.
- Unplug your chargers/transformers when not charging items, as they still draw power. These include cell phone, digital camera, battery and cordless hand vacuum/tool chargers. When charger is plugged steadily, energy wastes by 95%.

- Buy appliances with an ‘energy efficient’ label or rating. The government is introducing a standardized energy-efficiency labeling system, for comparative rating purposes. An ‘A’ rating is most energy efficient, while a ‘G’ rating is the least efficient.

- Turn off computer monitors and computers completely rather than leaving them on automatic stand-by mode.

- Reduce the temperature setting when you use the washing machine (reducing the temperature in the washing machine from 60°C to 30°C will reduce the energy consumption by almost 50%).

- If you are making one cup of tea/coffee, boil only enough water for one cup (don’t boil a full kettle unnecessarily).

- Use the kettle to boil water for pots for example, as it costs less than boiling water on the stove or in the microwave.

- Place the fridge/freezer away from a potential heat source (e.g. oven, direct sunlight, as energy consumption can amount to 20-30%).

- Defrost the fridge/freezer regularly (once every two months) – frost build up of 1cm or more increases running costs.

- Defrost food in the fridge the night before instead of defrosting in a microwave oven.

- Frost-free fridges do not require defrosting, but use more electricity.

- Allow hot or warm food to cool down naturally before placing in the fridge or freezer.

- Cover liquids and wrap foods stored in the fridge. Uncovered foods release moisture and make the compressor work harder.

- Keep lids on pots when cooking to conserve heat and energy. If you cook without or with slightly opened lid, it consumes energy in three times more.

- Always use kitchen utensils with a diameter of the bottom equal to the burners of electric stove.

- Keep the oven door closed until food is cooked (use the oven light to check instead). Every time the door is opened, heat is lost and must be replaced.

- A microwave oven is cheaper to operate than a stove (for reheating and cooking).

- Use a microwave oven, toaster, electric grill, pressure cooker, electric frying pan and bottle warmers where possible, as they use less electricity than other methods.

- Empty or replace your vacuum cleaner dust bag frequently.

Generally, it seems quite real to lessen the consumption of electricity on 40-50% without damaging quality of life and habits.

By and large, small changes make a big difference. If every one of us takes a little care with how we use electricity in our homes, we not only lighten the load on the environment, but we can save cash too. But we should remember that saving requires both behaviour and equipment.