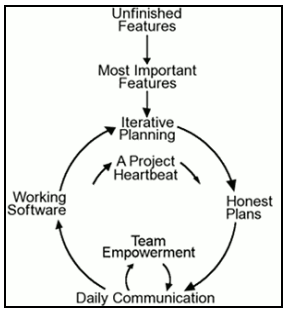

Pic. 1 – Agile software development process

Agile also means a fundamental change in how team manage its projects. If working software is what team will deliver then measure teams progress by how much team, have right now. Team will change its management style to be based on getting working software done a little at a time. The documents team used to create as project milestones may still be useful, just not as a measure of progress.

Instead of managing teams activities and waiting till the project ends for software, team will manage its requirements and demonstrate each new version to the customer. It is a hard change to make but it opens up new ways to develop software.

List of used sources:

1. Abrahamsson, P., Salo, O., Ronkainen, J., (2002). Agile Software Development Methods: Review and Analysis. VTT Publications

OBSTACLES TO RENEWABLE ENERGY

Belarusian State University of Informatics and Radioelectronics
Minsk, The Republic of Belarus

A.S. Heister

A.M. Lazarenko – senior lecturer

There is a great deal of information and enthusiasm today about the development and increased production of human's global energy needs from alternative energy sources. Solar energy, wind energy, hydropower, biomass energy and geothermal energy are all traditional sources of alternative energy that are making progress. The enthusiasm everyone shares for these developments has in many ways created a sense of complacency that our future energy demands will easily be met.

One major advantage with the use of renewable energy is that as it is renewable it is therefore sustainable and so will never run out. Renewable energy facilities generally require less maintenance than traditional generators. Their fuel being derived from natural and available resources reduces the costs of operation. Even more importantly, renewable energy produces little or no waste products such as carbon dioxide or other chemical pollutants, so has minimal impact on the environment. Renewable energy projects can also bring economic benefits to many regional areas, as most projects are located away from large urban centers and suburbs of the capital cities. These economic benefits may be from the increased use of local services as well as tourism.

It is easy to recognize the environmental advantages of utilizing the alternative and renewable forms of energy but we must also be aware of the disadvantages.

One disadvantage with renewable energy is that it is difficult to generate the quantities of electricity that are as large as those produced by traditional fossil fuel generators. This may mean that we need to reduce the amount of energy we use or simply build more energy facilities. It also indicates that the best solution to our energy problems may be to have a balance of many different power sources.

Another disadvantage of renewable energy sources is the reliability of supply. Renewable energy often relies on the weather for its source of power due to imperfect technology of renewable energy storage. Hydro generators need rain to fill dams to supply flowing water. Wind turbines need wind to turn the blades, and solar collectors need clear skies and sunshine to collect heat and make electricity. When these resources are unavailable so is the capacity to make energy from them. This can be unpredictable and inconsistent. The current cost of renewable energy technology is also far in excess of traditional fossil fuel generation. This is because it is a new technology and as such has extremely large capital cost.

Despite the promise of alternative energy sources, more appropriately called renewable energy, collectively they provide only about 8 percent of the world's energy needs [1]. This means that fossil fuels, along with nuclear energy — a controversial, non-renewable energy source — are supplying 92 percent of the world's energy resources.

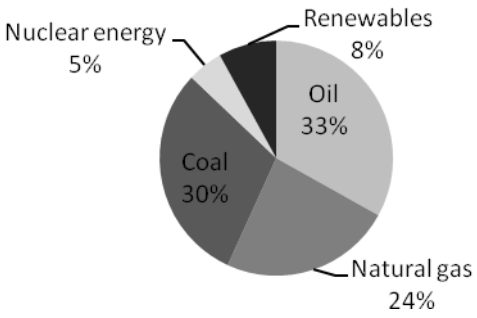

Fig. 1–2012 World Energy Consumption by Fuel Type

Relatively small percentage of renewable energy production may be explained by the following hurdles the renewable industry faces [2]:

- commercialization barriers faced by new technologies competing with mature technologies (undeveloped infrastructure and lack of economies of scale; most renewable energy technologies are manufactured on assembly lines, where mass production can greatly reduce cost);
- price distortions from existing subsidies and unequal tax burdens between renewables and other energy sources (compared with renewables, nuclear and fossil fuel technologies in many countries enjoy a considerable advantage in government subsidies for research and development);
- failure of the market to value the public benefits of renewables (public goods do not motivate everyone who benefits to pay for them, if they can choose to be "free riders" who benefit from the contributions of others);
- market barriers (inadequate information; lack of access to capital for renewable energy companies; renewables projects and companies are generally small; thus they have fewer resources than large generation companies or integrated utilities; these small companies are lessable to communicate directly with large numbers of customers);
- high financing costs(renewables developers and customers may have difficulty obtaining financing at rates as low as may be available for conventional energy facilities; in addition to having higher transaction costs, financial institutions are generally unfamiliar with the new technologies and likely to perceive them as risky, so that they may lend money at higher rates; high financing costs are especially significant to the competitive position of renewables, since renewables generally require higher initial investments than fossil fuel plants, even though they have lower operating costs).

References:

1. EIA (Energy Information Administration). 2012. *International Energy Outlook 2012*. Office of Integrated Analysis and Forecasting, U.S. Department of Energy.

2. Renewables Global Status Report 2012. on line athttp://www.ren21.net/REN21Activities/GlobalStatusReport.aspx

USERS' DATA SECURITY IN MOBILE DEVICES

Belarusian State University of Informatics and Radioelectronics
Minsk, Republic of Belarus

Rudsky A. V.

Serzhan N. P. – docent

One of the most important parts of modern mobile operation systems is users' data security. It makes us to use embedded tools for managing storage and transmission of users' data.

Modern operating systems provide several tools for preventing damage, leakage of users' data and sensitive application data.

Application Sandboxis used as a safe environment for mobile applications. It manages process pool and process independency, application memory area and checks for required permissions. This tool prevents access to another application data and hardware.

Permission-based access is supported by a mobile OS. It is also used for managing applications access to core system functionality and to users' data. Both users and developers unlock their mobile phones by rooting (get root access) and unlocking bootloader that give them ability to manage OS kernel and related services. But this makes the device less protected.

While user browsing Internet lot of data transferred to/from mobile device. Pre-installed browser has advanced mechanism of controlling and filtering unsafe traffic such as JS- and SQL-injections or hacking data packages.

In public places Wi-Fi networks are usually applied, but sometimes such connection cannot be relied on. In this case HTTPS can provide secure access Internet. But sometimes this functionality cannot be supported by mobile applications or remote servers. In this case a user can use VPN (Virtual Private Network) to prevent damage or leakage data during transmission.

Another option for protecting user's device is to set up pass-lock combination. This is special application preinstalled in Android and iOS operating systems that gives users the possibility to set up a numeric or graphical password. The application will ask for the password every time if someone tries to unlock device.