Newton's method is one of the most efficient means of solving systems of non-linear equations and optimization problems. Numerous versions of the method intended for linear programming (LP) have appeared recently. Primal-dual algorithms for which Newton's method is used to solve a parametrized system of equations, the limiting form of which gives optimality conditions for the direct and dual problems, are of special interest. These methods have both quite a high local rate of convergence and polynomial algorithms. We described another primal-dual method, based on solving a system of equations which set the optimality conditions in an LP problem, namely complementary slackness and accessibility.

If a transformation of spaces is used to avoid having to stipulate that the variables are nonnegative and Newton's method is used to find points satisfying the Kuhn-Tucker conditions, a whole family of different methods is obtained. These have been examined for the general problem of nonlinear programming. The present paper investigates methods of a special class, corresponding to componentwise transformations of spaces which involve the right-hand sides of the systems of ordinary differential equations describing the method, being multiplied by diagonal matrices which act as barriers and do not permit the trajectories to intersect the boundaries of positive orthants either in the original space or in the space of dual complementary variables. Unlike, the main focus here is the choice of steps in the direct and dual spaces which, as in, might be different. Versions of the method with small steps and with steps close to one or chosen by solving auxiliary optimization problems are considered separately.

ENERGY RESOURCES
Доп. – Косяненко Н.Н., ЕМ-41

- Talking about the sources of energy we should know what we call energetic resources.
- The main place in the balance of supply, extraction and using belongs to coal, oil and natural gas.

- Such kinds of fuel as peat, firewood in modern energy balances compose small per cent.
- In some countries energetic in whole is based on hydro energy. In fact energetic resources of wind are used very seldom.
- As for the solar energy today it is not used in full. It happens because we don't have necessary technical solution of the problem of reforming of this kind of energy to electricity.
- Nowadays the nuclear energy plays a huge role in energetic.
- The facts about energetic resources of the world change all the time.
- Energetic resources are natural sources of energy which are reformed further to such forms of energy what can be used in industrial processes, in transport and in everyday conditions.
- The passing century was the century of oil and natural gas. Production and consumption of these resources that replaced wood and coal in the beginning of the century, increases every year.
- Russia owns approximately 1/7 of the explored world oil stocks (about 27.5 billion ton) and about 1/3 of the world natural gas stocks (about 48 trillion m3 as of 1996).
- Oil and natural gas are not only effective energy sources, but also valuable primary chemical products.
- Traditionally, the problems of oil and natural gas export in the USSR and in Russia were more political than economic.
- The possible increase of prices for natural gas, exported from Uzbekistan, was discussed on the governmental conference.

ENERGY SAVING AND ALTERNATIVE SOURCES OF ENERGY

Доп. – Лепетюха Л.В., ЕМ-41

- Energy as money: "...it can be lack of them, it can be enough, but it can't be much of them... "