

Inside Darnytsia

heat recovery steam generators. The gas turbines will fire natural gas to generate the bulk of Darnytsia's incremental electrical output. The exhaust heat will be recovered in supplementary fired recovery steam generators that will generate high pressure steam at conditions matching those of the existing plant. Virtually all of the steam exhausted from the steam turbines will be used to heat the water for the district. In this mode the combined generation of heat and electricity can be as high as 95%, compared to approximately 33% in a plant where fuel is burned to generate electricity only.

PROJECT BENEFITS

orthland Power confidently predicts that the ultimate benefits of the project will be 53% more annual electrical power generated with only a 2.5% increase in fuel consumption (natural gas). This will translate into over US\$10-15 million annual savings in imported gas (based on estimated world prices of natural gas). In addition to the creation of new jobs, the project will also assure a supply of electricity to residents and industries in the capital region. The new technology will also result in a significant reduction in pollution. In addition to all this, Northland points to the potential for Ukrainian equipment manufacturers and Minenergo to participate in Northland's projects in Canada, China, and Colombia. This is what can be described as a "WIN-WIN" scenario.

This is a BOOT project, that is, a Build, Own, Operate and Transfer project. In order to attract hard currency financing from western financial institutions, Northland will control 51% of the project, while the Workers' Collective of Darnytsia and the State Property Fund. through Minenergo, will hold 49%. However, after project completion and upon repayment of all project debt and adequate compensation to investors, estimated at 15 years from the date of commissioning. Northland Power will relinquish its 51% project share to the Ukrainian government.

OTHER PROJECTS

In related developments, Northland Power is joining as a partner with a Ukrainian company to develop a small project in the Poltava-Kharkiv area which will produce 24 MW of electrical energy. This project has the potential of expanding to some 300 MW of electrical power over the next few years and will be financed from both Ukrainian and western banks.

The new energy market in Ukraine also opens up possibilities for involvement in smaller hydro projects such as a pump power station on the Dnister River. Northland Power has also been involved with some chemical and metal refinement companies in discussing the enhancement of "inside the fence", that is, power generation capabilities within these company structures. The new energy market system allows for greater flexibility to develop such projects where a very efficient cogeneration plant servicing the enterprise can also easily sell surplus power into the energy market - providing of course that the price is

There are many other electrical energy opportunities including hydro and coal-fired power plants which, with the aid of western technology and finance, can provide Ukraine competitive, clean and reliable power.

DARNYTSIA RECONSTRUCTION PROJECT





Ukrainian Partners and Northland Power will reconstruct the Darnytsia Heat & Power Plant

BENEFITS:

- generate 300 MW electric power
- produce 640 MW thermal power
- save over US \$ 10 million in imported gas fuel
- reduce harmful emissions
- better serve a community of 900,000 people

A SHOWCASE OF UKRAINIAN / CANADIAN **GOOPERATION**



FAX:

NORTHLAND POWER

30 St. Clair Ave. W., 16th floor 15 Kreschatyk Str., Toronto, Ontario,

Canada, M4V 3A2 TEL:

(416) 962-6262 FAX: (416) 962-6266 Suite № 075

Kyiv, Ukraine, 252001 TEL: (044) 228-0689

(044) 228-0689

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