

Economic sustainability

►Indicator 5: Energy Resilience

Vector Value Calculation:

1990 Total Consumption is 9,961.4 PJ, while import 5,350.5 PJ.

1995 Total Consumption is 6,878.1 PJ, while import 3,130.8 PJ.

Vector Value

1990: $5,350.5/8,987.6=0.60$

1995: $3,130.8/6,193.4=0.51$

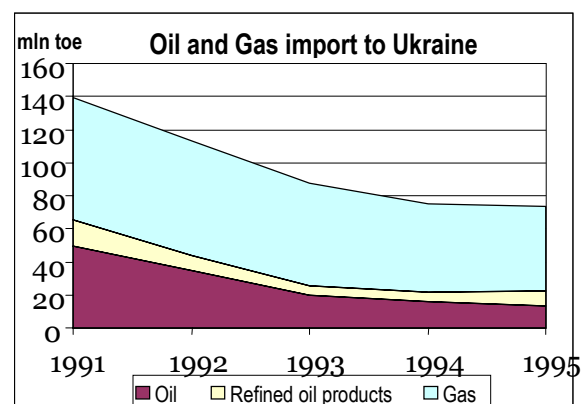
Ukraine is import dependent country in terms of energy. Since Ukraine got independence in 1991 the question of energy independence was one of the primary issues of state security. Main source of energy import for Ukraine is Russia. Even when Ukraine buys fuel from the third parties (for example gas from Turkmenistan and oil from Kazakhstan) it is still transported through Russia. In 1995, 20.3% of coal, 72.4% of natural gas and 77.5% of crude oil consumed in Ukraine was imported²².

Ukraine plays important role as a transit country for Russian oil and gas to Europe. Through the pipelines installed by the Soviet Union to support Central Europe Ukraine transported 123.6 bln cbm of gas and 56,5 m tones of oil transit in 2000.

Surprisingly, high dependence on energy imports does not lead to improvements in energy use efficiency. Ukraine energy use says extremely highly. This is caused by non-payment and reliance on energy extensive exporting industries as metallurgy.

For the period 1990-1995 Ukraine experienced sharp decrease of oil and gas import as a result of overall economic decline illustrated by the diagram 'Oil and Gas import to Ukraine'²³. In 2000 the country imported 5,8 m tons of oil, 2 m tones of coal and 60,7 bln cbm of gas.

None of the imported to Ukraine energy can be considered sustainable. The country imports coal, oil and gas, and not electricity. Ukraine can technically import energy from Russia where share of renewable energy is paltry.



Decline in energy import is not the result of increased domestic production. It is solely the result of fallen demand due to the economic crisis. Domestic energy production was not falling as fast as demand and energy import was the first source to skip. As a result, relative value of energy import has decrease. However, decline of energy import to Ukraine did not decrease dependence on donor countries (first of all Russia).

²² Business guide to the energy sector of Ukraine. Tacis. May 1997.

²³ Energy Policy of Ukraine.OECD.1996.

Table 5.1. Energy import and consumption in Ukraine²⁴.

				Hydro as renewable	
		1990	1995	1990	1995
Import	mtce	211.4	123.7		
	PJ	5,350.5	3,130.8		
Total consumption	Energy mtce and	355.1	111.1		
	Electricity TWh	270.5	190.2		
	PJ	9,961.4	6,878.1	9,922.9	6,841.4

Total *non-renewable energy consumption* is virtually equal to total *energy consumption*. Total renewable energy import is at zero level.

Counting big hydro as renewable does not influence the indicator value. Hydro energy production 10.7 TWh (38.5 PJ) in 1990 and 10.2 TWh (36.7 PJ) in 1995.

²⁴ Business Guide to the energy sector of Ukraine. Tacis. May 1997.

► Indicator 6: Burden of energy investments

Vector Value Calculation:

According to the Cabinet of Ministers in 1999 GDP was UAH 127.1 bln (USD 32.37 bln). Counting in Chernobyl-related expenditures we have UAH 4.9 bln or USD 1.25 bln of energy-related investments.

There is no data for the year 1990 available. Ukraine was still a part of the Soviet Union. However, we can expect that relative investments were about the same or slightly higher.

Vector Value

1990 ~ 0.4.

1999 = (1.25/32.37)* 10 = 0.38

In 1990 Ukraine was still part of the Soviet Union. Socialist system implies capital goods to be state property. Thus, any investments made in energy sector were done from the state budget. The situation is similar today. Despite the declared need for energy sector reforms and privatisation, not much has been done.

State controls energy sector and energy utilities, subsidizes them and forces them to deliver electricity to consumers, who are not able to pay the bills. Thus, general public finally pays for inefficient use of energy by consumers stealing energy or not paying for it. Year 2001 is expected to be the start for privatisation in energy sector. The government plans to sell a number of distribution companies. However, this process is constantly being delayed.

In the nineties Ukrainian government investment in energy sector (including capital investments, maintenance and research) has fallen dramatically. Ministry of Fuel and Energy was requesting UAH 1,300 m to be allocated in state budget for the year 2000. The ministry announced that it did not receive the entire amount, but had UAH 2,699.9 m of capital investments²⁵.

In the 2000 budget UAH 1.5 bln was allocated to cover the backlog for energy use of state institutions of all levels.

Ukraine is a country where investments to mitigate impacts of the unsustainable energy use were especially high. Today, 15 years after the disaster at Chernobyl nuclear power plant, Ukraine keeps paying to recover. For about ten years 14% of annual state income was directed to deal with consequences of the disaster. Ukrainian state budget has a section devoted to social consequences of the Chernobyl catastrophe and impacts mitigation which in 1999 counted UAH 1.75 bln. Same year budget allocated UAH 30 m for maintenance of Chernobyl reactors out of operation.

Overall state budget for 1999 counted for UAH 25.13 bln. In 1999 state budget 1.6 bln hryvnas was allocated for energy and fuel industry, UAH 421 m for the coal sector restructuring, UAH 1.1 bln for the state support of coal mining. Thus, energy related investments counted for UAH 3.1 bln without Chernobyl related expenditures and UAH 4.9 bln with it (19% of the annual budget).

²⁵ Energy Today, by the Ministry of Fuel and Power (Olexander Dupak, 31.01.2001)