

1: Energy policy of the Soviet Union - Wikipedia

The energy policy of the Soviet Union was an important feature of the country's planned economy from the time of Lenin onward. The Soviet Union was virtually a self-sufficient energy nation; the development of the energy sector started with Stalin's autarky policy.

However, a more plausible explanation is the decline in Soviet oil production caused by peak oil. This gives the world an example of a modern economy confronted by peak oil and what lessons we can learn from it. The odd thing is, the Soviet Union, even with a planned communist economy, managed to become a super-power with a military prowess that scared the West. It produced over 2 million motor vehicles a year, over million tons of steel a year, and hundreds of advanced MIG jet fighters every year. However, we know that free markets do work, and upon close inspection, the Soviets actually did use markets: So in fact, the Soviet Union was market-oriented after all. Nobody has to give back their Nobel prizes just yet. Still, Robert Solow suggests that technical progress is the cause of four-fifths of the US output per worker, which suggests that it should also cause four-fifths or so of increases in Soviet output per worker. However, neo-classical economists emphasize that free markets give the incentives necessary for such innovations, which makes you wonder why was the Soviet planned economy able to essentially keep up with America when it was not be able to give as many incentives as the US could and therefore could not induce innovations as well as the US could. One reason is that the Solow neo-classical growth theory is incomplete. Yes, labor, capital and technological innovation are important inputs into economic growth, but what Cleveland et. If you take away energy, the labor, the capital and the technology inputs cannot do a thing. Energy must be separated as an input into growth and analyzed and econometrically modeled. If that were done consistently, then energy analysis would be one of the most central themes in the American celebration of the global economic rise as well as a central theme in our understanding of the Soviet economy. The American and Western economies rose not just because of technology alone, but because of the use of high quality energy, and lots of it. Similarly, the Soviet Union rose due to energy use too. The Importance of Energy for an Economic System If we acknowledge that the Soviet Union had a powerful economy, which it did, and acknowledge that its economy was based on the same abundant, high quality energy that the US depended on, oil, then the reason for the fall is clearâ€”peak oil. The fall of the Soviet Union is a peak oil event and if we treat it as such, then we can begin to understand what is in store for our own economy. Indeed, the fall of the Soviet Union is a perfect economic experiment for what will happen to our own world economy as peak oil continues. According to the Economist , the world is experiencing a rising cost for extracting energy because the energy needed to extract energy is rising, i. What is more the Economist finally says what so many others, like Hamilton , have been saying for years, that energy costs are affecting the economy. In other words, peak oil will cause economic decline. However, if peak oil is affecting the world, than why would it not have affected the Soviet Union too? Nevertheless, one way to analyze the fall of the Soviet Union is to simply analyze its conventional oil use, which has been studied, see Reynolds and Kolodziej and and Reynolds , , and a. Nevertheless, before we can look at a peak oil theory for the fall, it would be good to look at the alternative Soviet collapse theories that abound. However, upon a close inspection of Beare and Easterly and Fischer , articles which surely would have been referred to in a TFP analysis, it is shown that in fact TFP was always growing, although at a declining rate, but growing nonetheless. Thus, a slow growth in TFP can only cause an economy to grow more slowly, not collapse. Still a poor TFP performance cannot have been the cause of the Soviet demise as even China had a poor TFP performance before its embrace of free markets and the Chinese Communist party is still going strong. In fact, it would have been too difficult to start reacting to Reagan within the 11th Five Year plan without rewriting and reorganizing the whole plan, a feat that would have taken years. However, the 12th Five Year Plan does not show any evidence of a huge change in defense spending, nor was there any recorded change in defense spending until about , nor are there any other signs of change before then such as a radical increase in the number of missiles. That means the hypothesis, which depends on the idea that defense and internal communist police spending were taking away investment into new productive capital, would require many

years after before an effect on the overall Soviet economy should have been observed, yet the fall started to happen in that very year of as that is when Eastern Europe, part of the Soviet Empire, started to have problems. Also, the propaganda surrounding the 12th Five Year Plan was one of openness glasnost and development uskoreniye not one of military spending increases or the need to more adequately defend the Soviet homeland. It seems highly unlikely that it was the 12th Five Year Plan that could have caused a precipitous fall in the Soviet Union that actually started in only two years after the beginning of the plan. So what is needed is to take a different analytical tack in assessing the collapse of the Soviet Union, away from the political, economic and military propaganda, and consider the USSR as an energy system. Clearly it used the same high quality energy resources that the US and the rest of the world did, see Table 1, so that means that not only did the Soviet Union use some free market principles, parallel to the West, but it used almost the same energy systems as well. If we analyze the Soviet Union as an energy system therefore, rather than as a political or even economic system, then we can start to understand both its great economic output in spite of its inefficient planning and its great fall in spite of its internal albeit black market system. Also oil has 20, Btus per pound weight grade , 1 million Btus per cubic foot volume grade and billion Btus per acre in-situ area grade. In aggregate, as a sort of energy theory of value, oil has the highest energy grade of any energy resource. It also has the highest energy return on investment EROI than any other energy when considering large conventional oil fields. See for example Hall So looking at the value of oil, it is clear why the Soviet Union rose to prominence as it was able to produce so much cheap oil upon which to base its economy. Oil smoothed out Soviet inefficiency. However, the Soviet Union fell when its oil production fell and it no longer had cheap, high quality energy. Thus the Soviet Union and the US both had vast resources of oil and both grew powerful because they both exploited oil so much. Both economies extracted oil quickly, although the so called inefficient Soviet Union managed to exploit its oil resources even faster than the so called efficient USA: King Hubbert and many others see Brandt predicted; the Soviet Union in See Figures 1 and 2. Thus the US shows that no matter how advanced or efficient an economy is and the US is one of the best you will eventually endure peak oil, and that an oil shock caused by oil scarcity can affect your economy adversely. Figure 1 Figure 2 The Chicken or the Egg? Being a closed economic system, the USSR and the Soviet East had very little trade with the West and so that system had to depend completely on its own oil production. When Soviet oil production declined, so did its economy. You could argue that a lack of markets, Soviet inefficiency or the political chaos in the s caused the production to fall, but as spelled out in Reynolds and Reynolds and Kolodziej , the only thing that makes sense is that scarcity caused the decline in oil production first and that the decline in oil production caused the collapse of the Soviet East afterward. After all, why did only Soviet oil production decline but not Soviet natural gas production, two industries that are very similar, if inefficiency was so rampant? Why did Soviet oil production increase before without much Western technology only to suddenly start declining after even when the Soviets had access to Western technology? And why did a period of glasnost cause the Soviet Union and the Soviet oil dependent Eastern Europe to collapse, but a similar glasnost caused China to rise and stay communist? The only explanation that works is the dependency on internal cheap oil and the peak oil hypothesis. If you look closely at the news prior to the collapse of the Soviet Union, you see that first Eastern Europe went through economic chaos starting in , the year of Soviet peak oil, followed by Russia in and beyond. Interestingly, once the Soviets saw their peak in oil in , they forced all the Council of Mutual Economic Assistance CMEA countries to pay for their Russian derived oil in hard currency and at Western oil prices. But the Eastern European countries had no such currency to pay for oil and so they had to curtail their use of oil. Well, without any almost free oil available, you cannot run a modern economy no matter how efficient it is let alone an inefficient communist one. This caused the Eastern European economies to collapse and revolutions in Eastern Europe to erupt starting in Clearly, then is the initial point of the overarching fall of the Soviet Union when you include its regional influence in Eastern Europe. But as Soviet oil production continued to decline after , peak oil affected the Soviet economy as well, causing its collapse. So the real reason for the fall of the Soviet Union was an oil crisis. It was the third major oil crisis of the 20th century after the and oil crises, but you never hear of it. The Post-Soviet Oil Rise You might ask, if there was peak oil in the Soviet Union during the fall, then why did

former Soviet oil production rise again after ? To answer this question consider a parallel question. Why did the ancient Babylonians of Mesopotamia fall? After all, if the ancient Babylonians had modern 21st century technology, they would not have fallen. Well, they did not have that technology, but then neither did the Soviets have a lot of Western technology, not because the Soviets did not buy much new oil technology from the West, but because their system was not set up to use that technology. The main reason for the rise in Post-Soviet oil production was that there was a change in relative prices between energy and labor, a change in property rights and a change in the over-arching market structure behind the use of such technology. See Dienes for the complete analysis. During the Soviet era, the oil production enterprises used simple primary and secondary oil production techniques to produce the massive oil that existed. However, the enterprises depended on Soviet technology, Soviet supply lines and above all were under Soviet government dictums. This is where we must also use conventional neo-classical economics to understand events. Remember, oil was basically given away at a low cost, but there was an initial government plan and investment to get it, i. Nevertheless, there was little incentive within the system to upgrade the necessary technology and invest heavily in new techniques because the price was set so low, although much investment did occur within the confines of the system. The one thing that Soviet oil enterprises could not do was to manage the oil resources to maximize the value of oil over the long term. Better to produce quickly now, and ruin a field or waste oil, then to produce more slowly to maximize total value. Nevertheless, such waste does not imply a lack of technology caused the fall, it implies a lack of oil caused the fall and that the lack of technical efficiency did not help matters. After all, if the Soviets had had ten more Western Siberias of oil, or even more, then their oil production would not have fallenâ€”they would not have had peak oilâ€”because more cheap oil would have been available. Still whether you have an efficient car or an inefficient car, it cannot run without any fuel. Nevertheless, the fact remains that under a closed and bureaucratic system that was unable to change, oil became scarce within the confines of that system. Thus, with a closed and relatively less efficient system, it could not have been lower levels of technology, lower levels of investment and lower levels of management that caused a Soviet peak and decline in oil since Soviet technology and managementâ€”though inefficientâ€”was always improving. Rather it was oil scarcity, i. Indeed, Soviet investments into the oil sector were increasing as Gustafson makes clear. More investment, better technology, and more openness toward the end of the Soviet Union cannot cause a peak oil event, only scarcity can do that. The Soviet Union endured a peak in oil production within its particular system. Once the system changed, there was indeed a renewal of oil production, but even under the new system today there is again peak oil as figure 1 shows. However, just because a system can change, does not mean that the old system did not endure peak oil, it did. Logic dictates cause and effect in time and context. Still, even if a more efficient system was put in place in that region and caused oil production to increase, that still does not imply that the fall of the Soviet Union was not caused by peak oil. The crux of the issue is, can the world also endure the same oil crisis event that the Soviet East endured? Seeing as the world is a closed system with a certain level of technology then it too is subject to peak oil and the economic consequences of that peak. See Figure 3 to view where peak oil stands for the world. However, a close comparison of the Soviet Union and the world suggests that the world will not suddenly have an increase in oil production as the Soviet Union did. First the Soviet Union had a huge increase in technology after and especially after its currency crisis in Second the whole of the region of the Soviet Union, not just one little oblast, was changed. Finally, most of the Soviet oil reserves shifted from state ownership to being privately held.

2: Soviet Union - HISTORY

This book analyzes the alternatives that Soviet energy planners face in meeting domestic needs and in exporting high-priced energy products as a source of revenue for the purchase of advanced.

Railroad Transportation[edit] The Central Asian railroad network was designed primarily with the needs of former Soviet Union planners in mind. The entire Soviet railways system was built with Moscow at its core. Consequently, Central Asian railroads are mainly oriented north-south and now-existing borders were disregarded in planning. As a result, virtually all freight cargo from Central Asia to Russia crosses Kazakhstan, including trade with Europe. Uzbekistan also has significant transit traffic. The other Central Asian countries are mostly single track and not electrified. It was formed in out of the Turkestan-Siberian and Karaganda railroads and sections of the former Tashkent, Orenburg, and Southern Urals railroads. In , the Kazakh Railroad was awarded the Order of Lenin. After independence, each country nationalized and progressively took control of their own railways. As there are no railroad locomotive or car manufacturers in Central Asia, there is a constant shortage of spare parts and an inability to properly maintain railroad vehicles. Electricity arrives from substations in high-voltage power transmission lines, is converted, and then transmitted over feed and negative booster lines to the contact system and then to the rolling stock. Rail gauge[edit] Bishkek rail overpass Rail gauge in former Soviet territory differs from the gauge in the rest of the world. Rail tracks in the former Soviet territories are on a broad-gauge track of 1, millimeters 60 inches versus the global standard gauge of 1, millimeters used in China, most of Europe , North America , most of Australia, Iran and Turkey. The Russian Empire and the Soviet Union intentionally used a different gauge ostensibly to block invaders from entering Russia by rail [citation needed]. Consequently, trains on the current rail line from China to Kazakhstan must stop at the border, where cargo is unloaded and then reloaded onto trains on the broad-gauge rail line in Kazakhstan for transit through Central Asia. When the Soviet Union broke up, shares of the Soviet wagon fleet were allocated to the various republics; the smaller ones did not get the better deals. As a feature of the Soviet system, state-owned rail companies provide provided social welfare services such as free education and housing to their workers. After independence, each country had to figure out how to address these obligations without Soviet funding. In Soviet times, marketing was not a concern for railways since their clients were for the most part assigned to them by a central planning agency. To increase revenues after independence, railways had either to find more clients or to increase tariffs. Rail prominence and decline[edit] The new railways faced difficulties adopting monolithic organizations with large social welfare burdens and aging equipment. The Kyrgyz Republic and Tajikistan started national railways from scratch as they were left with only branches of Soviet companies. The railways changed from a command economy in which the only client was the state to a market economy with many clients, each with its own requirements and free to choose another, more suitable transport mode. Networks were not designed with a national economy in mind and were poorly connected often necessitating crossing borders to travel between regions of a country. There was a sharp fall in traffic volume, which has started picking up since In the CIS, an inter-governmental agreement was signed as early as 14 February This organization coordinates the operations and development of the railways and has facilitated several important agreements on tariffs. The railway in Uzbekistan via Navoi and Nukus and then through Makat in Kazakhstan provides a link between southern Uzbekistan, Turkmenistan, and Tajikistan to western Siberia. It also provides an alternative east-west link to the Kzyl-Orda-Aralsk route via Aktau. Many of the worst were either scrapped or cannibalized to maintain the others. At the time of independence, the number of freight wagons in Kazakhstan was estimated to be , In , the number was down to 78, Initially planned in , construction began in the s but was not completed until A lack of track-sharing agreements means that a single operator moving goods through two or more countries is not feasible. This causes time-consuming and costly border operations - trains have to change locomotives and crews at each border crossing. There is no system of sealing wagons to avoid the need for customs inspections at borders or within transit countries. Cargo documentation is often complicated with separate weigh bills for each country traversed; any documentation problem can result in the wagon being

detained for several days. Almost all food products are carried by road transport from south to north, particularly during the warmer months. They also serve international transportation lines, airports, and health resorts of all-Union significance. In Central Asia, the major highways which were built include: This highway was built from to It was the chief highway of southern Kazakhstan, passing through Dzhambul and Shimkent. Built in with substantial reconstruction in the s. This highway was called the Lenin Road. It passed through Guliston and Samarkand. Built from to this was the main highway of the Kyrgyz Republic connecting the northern and southern oblasts of the republic. On this highway, the largest highway tunnel in the USSR was built at an altitude of 3, meters stretching 2. Called the Pamir Road, this highway was built from to This route allowed transport to the Gorno-Altai Autonomous Oblast. Some stretches of the route are at elevations above 4, meters, including the Taldy Pass see photo. It was published in Moscow beginning in , dealing with questions of planning, building, repairing and maintaining highways. Published in Moscow starting in , it highlighted problems in organization shipments and vehicular transportation, design and repair of vehicles, training of employees and traffic safety, along with transportation abroad. Their mountainous terrain makes transportation challenging and expensive. Following the Soviet legacy, they are also typically oriented along the north-south axis. The north-south road through eastern Kazakhstan via Almaty and Aktogay provides an important link between the Kyrgyz Republic and Uzbekistan to a lesser extent and eastern Siberia. Pamir highway near Karakul In Turkmenistan, which does not receive as much foreign aid but has substantial natural gas reserves, the Soviet system of management has largely remained in place. Five separate ministries are in charge of specific segments of the transportation sector. The government has not developed any master plan on road improvements, so upgrades do not take into account traffic volume, future building or maintenance costs. International Road Linkages[edit] All Central Asian Republics are members of the International Road Union , which assists with implementation of international road transport agreements. In general, China does not participate in these broad multilateral agreements; however, it has made smaller-scale agreements. When the Soviet Union collapsed, these countries quickly discovered that their new, disconnected grids had significant gaps. In winter Turkmenistan, Kazakhstan and Uzbekistan would supply gas to Tajikistan and Kyrgyzstan to cover their heating needs. With the disintegration of Soviet-era sharing agreements, Tajikistan and Kyrgyzstan are facing drastic shortages in power supply. The winter shortage in Tajikistan is MW. The plant began operating in with 1, Megawatts capacity. It has a dam that is meters high. The dam forms the Toktogul Reservoir which began filling in The reservoir covers square km. The reservoir regulates the flow of the Naryn River , allowing for the irrigation of 0. The dam is m high, with a volume of 56 million cubic meters. Electric power from the dam supplied the unified power grid of Central Asia through transmission lines operating at and kilovolts. The planned capacity was 2, Megawatts. The reservoir formed by the dam began filling in , with an area of 98 square kilometers. It provided seasonal regulation of water flow and made possible the irrigation of 1 million hectares of land in the Karshi and Kzyl-Kum steppes and the Dangara Plateau. It had an established capacity of megawatts, with construction beginning in , operating at full capacity in The dam height is 80 meters, forming the Bukhtarma Reservoir and providing electricity to east Kazakhstan. The reservoir began filling in with an area of 5, square km. It allows for irrigation of hundreds of thousands of acres of floodplains in several oblasts. Hydroelectric projects were also carried out in highly seismic regions of which the Toktogul dam is a "9-point region". The government allowed two thermal plants in Osh and Bishkek to deteriorate to the extent that now produces power shortages in winter. The ministry of water and irrigation is one of the largest debtors to Barki Tajik, the national electricity company. The government argues that both sectors are crucial sources of revenue. After gaining independence in Kazakhstan moved to address strategic vulnerabilities of the energy system. At the time the northern part of the country was linked with the Russian grid, while southern regions draw their supply from the unified regional system. By building two north-south transmission lines one in and the other in the country connected its southern territories to major sources of energy in the north and decreased dependence on its neighbours. For coal, the share of transport costs in the final price is even higher.

3: Soviet infrastructure in Central Asia - Wikipedia

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Not so easy; across the country, it is impossible to connect a solar panel to the electricity network. The technical specifications to feed electricity onto the network have never been written, and neither have the regulations to govern it, said another. These are a few dispatches from the strange, retro world of the Russian power grid. Operating without much new investment since the heyday of the Soviet Union, it is showing its age. Petersburg, said in an email. Just where the money will come from has never been more uncertain. The Russian economy is teetering on recession, and this week the ruble has tumbled to historic lows. In the end, the biggest economic winner might be China. Advertisement The most remarkable thing may be that the Russian grid continues to run, year in and year out, with what amounts to a sort of heroism. These are grandfathers in the system that have been able to avoid more crises than there could have been. Each building is on its own. In most Russian cities, both electricity and heat are doled out by district systems, established by Soviet central planners in the s and s and altered little since. Graphic courtesy of IHS. A district, which might encompass 2 square miles or more, has at its center a power plant. Drive across Moscow and one will see these gas-fired power plants and their red- and white-banded smokestacks poking up among the apartment blocks. These district systems, also widely used in Scandinavia, were quite efficient when they were built. The pipes are leaking and lack insulation, said Gianguido Piani, an Italian electric control-systems expert who spent 20 years working in Russia. An apartment tower located close to the plant has near-boiling water coursing through its radiators, emanating so much heat that a resident might need to open his windows to the January winter to cool off. Those far away, or in older, poorly insulated apartments, might need to plug in an electric space heater just to stay warm, Piani said. Money also gave rise to new power consumers downtown, like restaurants, shopping centers, theaters and illuminated billboards, which have seesaws in demand that Soviet planners never foresaw. But the network of local wires, known as the distribution grid, has not kept pace. The result is that new enterprises bump up against a hard ceiling of electricity supply, with the only solution being a long wait or a bribe. Her assertion could not be independently confirmed. The impact on economic development can be profound. In , the Swedish furniture behemoth Ikea fired two of its executives for allowing a contractor to offer bribes in order to obtain an electrical supply at new stores in St. The weak system of wires is the most obvious sign of an urban grid caught in a time warp. While the big cities like Moscow and St. Petersburg rely on modern digital switchgear, Piani said, smaller cities are a throwback to the s and s, where regional offices place orders for electricity by phone, and track developments on the grid with markers on paper maps. The brutal and lengthy Russian winter is closely linked to the glacial pace of renovation. Repairs can take place only in the brief warm season between May and October, Piani said, and during that window, grid operators are focused on avoiding a blackout, rather than improving service. A heat wave in Moscow prompted one in , and sometimes an especially cold winter day will lead to some customers losing power, even as critical infrastructure like railways and the subway keep working. Reliability "is goal No. To have a blackout in winter would be a real life-or-death matter. Gas consumption per unit of electricity generated is 30 to 50 percent higher than in developed countries, analysts said. The International Energy Agency has reported that the energy intensity of the Russian economy is two times the average of its member nations. A Ferrari in the middle of a field While Russia on the whole has an adequate supply of electrons, many of its big power plants are in the wrong places. In most Russian cities, both electricity and heat are doled out by Soviet-era district systems, with plants scattered across the cities. Many were purpose-built to serve huge factories, like petroleum plants or aluminum smelters, that were placed in the empty vastness of the countryside. Now, as the consumer economy has shifted power demand toward the city, many of these generators are hundreds or thousands of miles from the customers, leading to congestion problems. Few transmission lines cross the belly of the country between West and East. Most march inefficiently down into

Kazakhstan and up into the other half, he said, a legacy of when that country was a Soviet state. In Siberia and the far East, where 20 million people live, there is often no connection to the nationwide power grid. Instead, users rely on diesel brought in by truck, boat or even helicopter. Governments in these far-flung establishments can spend more than half of their budgets on fuel, Prokofyeva said. Volostnov estimated that 85 percent of equipment is sourced from abroad, while much of the remainder is made by those same companies, only in Russian factories. But they are causing a chill all the same. The biggest players in electricity -- Western conglomerates with many lines of business -- are in the uncomfortable position of denying sales to the oil and gas sector while trying to woo others. Siemens of Germany has seen a 30 percent plunge in orders in Russia and recently dropped its bid to build trains for the Moscow subway. Schneider Electric has invested heavily in Russia in recent years and counts it as its fourth largest market. Sanctions aside, Western suppliers are confronting a deteriorating economy within Russia. Plummeting oil prices are having an outsize effect on the Russian economy, which counts oil as its dominant export, and the sliding ruble makes it more expensive for Russian firms to buy Western equipment. However, for some of our product line we will increase the prices in ruble as all other international companies," Roquet Montegon wrote. As uncertainty mars relationships with the West, China is stepping into the breach. Alongside massive deals to export natural gas to China, and for China to build large hydropower plants in Russia, Chinese grid suppliers are looking to expand here, including NR Electric and Shandong Electric Power Engineering Consulting Institute Corp. The deals that are emerging often come on terms favorable to China, funded through Chinese banks, and with requirements for use of Chinese equipment that may force Western companies to the sidelines, even though the equipment might not be as high quality as that in the West. In Russia, that conversation has barely begun. Under the former president, Dmitry Medvedev, the central government set a goal of achieving 4. But most observers agree that Russia will fail to meet that goal, since the rules that would encourage investment in solar, wind, geothermal and biofuels are appearing at a slow and fitful pace. Part of the problem is practical: Russia, whose economy is 60 percent more carbon-intensive than other developed economies, has a power grid whose generation is more than 60 percent owned or controlled by the Kremlin. The central government also controls most of the electricity transmission infrastructure, analysts said. The light bulb at the end of the tunnel From this dire situation, several rays of optimism emerge. In the electricity business, de Vere Walker said, that will be a tough climb. And a lot of their grid needs renovation now," he said. Another line of thinking, distinct from the first, is that the electricity situation is becoming so bad that industrial plants, and perhaps communities in the East and Siberia, could take matters into their own hands and commission their own small power plants. It may already be happening. The Dega Group, a Finnish firm, is working with E.ON to build standalone power systems in Russia. Uptake of these sorts of systems may spark a market for the sorts of cutting-edge products that are hot in the West, like microgrids, solar power, fuel cells and energy storage. De Vere Walker noted that where an American engineer might see a generator on the brink of failure, a Russian might see one that could be flogged for another 15 years.

4: Peak Oil and the Collapse of the Soviet Union | www.enganchecubano.com

Energy in the Soviet Union A prominent commentator on Eastern European affairs takes up some points raised by J.H. Chesshire and Miss C. Huggett in their paper, "Primary Energy production in the Soviet Union"¹ which appeared in the September 1 issue of *Energy Policy*.

Russia Table of Contents Energy plays a central role in the Russian economy because it drives all the other elements of the system--the industrial, agricultural, commercial, and government sectors. In addition, energy, particularly petroleum and natural gas, is the most important export and source of foreign exchange for the Russian economy. Experts forecast that the energy sector will continue to occupy this central position until Russian manufacturing reaches a level competitive with the West. But Russia is also one of the most energy-dependent countries. Soviet energy-pricing policies disregarded resource utilization in the quest for higher output volumes and discouraged the adoption of conservation measures. Soviet planners also skewed resources toward the defense-related and heavy industries, which consume energy more intensively than other sectors of the economy. The problems that plagued the Russian energy sector in the last decades of the Soviet Union were exacerbated during the transition period. Since the output of all types of fuel and energy has declined, partly because of plummeting demand for energy during a time of general economic contraction. But the energy sectors also have suffered from the intrinsic structural defects of the central planning system: The structure of energy and fuel production began to change dramatically in the s with the exploitation of large natural gas deposits. Oil accounts for another 20 percent, a proportion that is expected to remain approximately constant. Coal and other solid fuels, water power, and nuclear energy account for smaller shares that experts predict likely will decline after Despite the waste of fuel in the Russian economy, Russia manages to produce a surplus of energy for export. Exports, particularly of natural gas and oil, have accounted for 30 percent of Russian energy production, and this share is expected to hold steady. Russian energy pricing policies have changed. Since January , energy has been gradually deregulated, closing the gap between world market prices and domestic prices and forcing consumers to conserve. Russia is also adopting Western technology and more efficient management techniques that will improve productivity in the sector. Estimates place proven and potential oil reserves at 8 to 11 billion tons. In the latter year, the yield was million barrels, 13 million barrels less than the previous year. Output for the first quarter of was million barrels. Wasteful Soviet oil exploration and extraction techniques depleted wells, which often fell far below their potential capacity. Soviet technology was not capable of exploring and extracting as deeply and efficiently as Western technology. In the number of oil wells drilled was only one-quarter the number drilled in The main European oil and gas fields are located in the Volga-Ural region, the North Caucasus, and the far north of the Republic of Komi see fig. Russian oil companies are vertically integrated units that control the entire production process from exploration to transmission. The largest company is Lukoil, which, according to some measurements, is the largest oil company in the world. The dominance of a few large companies has made all stages of petroleum exploitation and sale extremely inefficient. National and local government policies have discouraged individual retailers from establishing independent gasoline storage facilities and stations; therefore, retail gasoline likely will continue to be in very short supply only 8, stations were operating in Russia in Until January , government policy applied quotas to oil exports, and until July tariffs were applied to oil exports. Both policies, resulting from the gap between controlled domestic prices and world market prices, aimed at ensuring a sufficient supply of oil to meet domestic demand; both were lifted as the gap narrowed. Russia has staked its claim to the Caspian oil reserves that Western companies are exploring in conjunction with Azerbaijani, Turkmenistani, and Kazakstani state companies. Natural gas has also been one of the most successful parts of the Russian economy. In the early s, it replaced oil as the Soviet "growth fuel," offering cheaper extraction and transportation. Although output has dropped in the s, the decline has not been as severe as that for other energy sources or the rest of the economy. Natural gas production peaked in at million cubic meters, then dropped throughout the early s. But production, million cubic meters, was an increase from the previous year. After European gas fields in the Volga-Ural region dominated the industry

through the s, production shifted to giant fields in Siberia. The Urengoy and Yamburg fields in the West Siberia region are among the most productive; the former is the largest field in the world. Soviet plans called for rapid development of new reserves in the Yamal Peninsula in the Arctic Ocean north of Urengoy, but environmental problems and infrastructure costs slowed development. A vertically organized enterprise, the company has been reorganized into a joint-stock company, in which 40 percent of the shares remain under state control. Company employees hold another 15 percent, managers of the company hold 10 percent, and the remaining 35 percent were sold at public auction. Gazprom controls a network of regional production associations. Its management, which once was headed by Prime Minister Viktor Chernomyrdin, has been accused of corruption and tax evasion. In the s, oil and natural gas overtook coal when plentiful reserves of those fuels became available and the coal shafts of the European Soviet Union located primarily in what is today Ukraine were being exhausted. Russian coal reserves are estimated at billion tons, an amount that experts say is more than ample for current usage trends. Largely untapped coal fields lie in the Siberian Tunguska and Lena basins. Productive fields in Siberia are located along the Trans-Siberian Railroad, making their exploitation more economical. The largest operational sources in that region are the Kuznetsk, Kansk-Achinsk, and Cheremkhovo fields. Coal is one of the less important sources of energy because its labor-intensive extraction makes production much more costly than other fuels. Russian coal production has declined markedly over the last decade, and the coal industry has suffered a long series of strikes. Experts predict that coal output will continue to dwindle as its relative usefulness in industry and domestic applications is reduced. In Russia produced million tons of coal, and in the total rose to million tons. Production for the first quarter of was 71 million tons. Nuclear Energy In some twenty-nine nuclear reactors were operating at nine sites: Balakovo on the northwest border of Kazakstan, Beloyarsk in the southern Urals, Bilibino in northeastern Siberia the only station east of the Urals , Kola in the far northwest, Kursk near the Ukrainian border, Novovoronezh on the Don River, St. The plants are operated by regional joint-stock companies in which the Ministry of Atomic Energy Minatom controls 51 percent of the shares. The nuclear energy sector has undergone financial problems because of government funding reductions. The industry has turned to selling goods related to nuclear energy--equipment and instruments, nuclear fuel, medical isotopes, and fertilizers. Nevertheless, experts predict that nuclear energy probably will play an important role in the Russian economy if enough investment is available to expand existing capacity. In Minatom announced plans to double nuclear energy capacity by , but ensuing financial problems have caused a reduction of that goal, and no new capacity has been added since the breakup of the Soviet Union. The International Atomic Energy Agency IAEA projects that construction of new capacity will not begin until after , even if the investment climate is favorable. Conventional Power Generation Much of the conventional fuel produced in Russia is burned to produce electric power. Of the total rated generating capacity of gigawatts, only about gigawatts were available as of Generation for the first quarter of normally the peak demand period of the year was million kilowatt-hours. In natural gas provided 42 percent of electricity production; hydroelectric plants, 19 percent; coal, 18 percent; nuclear power, 13 percent; and other sources such as solar and geothermal plants, 8 percent. Natural gas and coal are burned at thermoelectric plants, which produce only electricity, and at cogeneration plants, which produce electricity and heat for urban centers. Thermoelectric and hydroelectric plants--located in Siberia because of available fuels and water power--send power to European Russia through a system of high-voltage transmission lines. Consumption of electric power divides into the following categories: Regional energy commissions control the price of electricity. Foreign Investment in Oil and Gas In the mids, many analysts consider the oil and gas industries to be the best targets for foreign investment in Russia. The record of foreign investment in that period illustrates both the potentials and the pitfalls of such ventures. Experts have concluded that the Russian oil and gas sector will require large amounts of foreign capital to improve output. The Russian oil and gas sector also would benefit from infusions of Western technology and expertise. However, according to a report by Cambridge Energy Research Associates, key figures in the oil industry, most of whom were schooled in the isolated Soviet-era approach to commerce, have been indifferent or hostile to Western management methods. Although Western companies are poised to commit large amounts of capital for exploration, as of most foreign investment had gone to repairing and

maintaining current facilities. Among several United States oil companies active in Russia, Texaco heads a consortium in the largest project, the development of oil fields in the Timan-Pechora section of the Komi region north of the Arctic Circle. Conoco, a subsidiary of the DuPont de Nemours chemical firm, leads a consortium of United States and European firms and a Russian firm in the Polar Lights project to explore Siberian oil fields. Foreign and domestic firms were also subject to royalty payments to the Government for the privilege of drilling for oil. Foreign investors have argued that reduced profit margins are a substantial obstacle to the support of some projects. Some major oil investors have received tax exemptions, but delays in rebate payments have created additional deterrents. More about the Economy of Russia.

5: Project MUSE - Energy and the Soviet Bloc

In lieu of an abstract, here is a brief excerpt of the content. Energy I w h a t are the implications of Soviet energy problems for Soviet-American relations? American minds, when first confronted with that question fouryears ago, understandably leapt first to the Persian Gulf.

The dictator ruled by terror with a series of brutal policies, which left millions of his own citizens dead. During his reign—which lasted until his death in — Stalin transformed the Soviet Union from an agrarian society to an industrial and military superpower. Stalin implemented a series of Five-Year Plans to spur economic growth and transformation in the Soviet Union. The first Five-Year Plan focused on collectivizing agriculture and rapid industrialization. Subsequent Five-Year Plans focused on the production of armaments and military build-up. Between and , Stalin enforced the collectivization of the agricultural sector. Rural peasants were forced to join collective farms. Those that owned land or livestock were stripped of their holdings. Hundreds of thousands of higher-income farmers, called kulaks, were rounded up and executed, their property confiscated. The Communists believed that consolidating individually owned farms into a series of large state-run collective farms would increase agricultural productivity. The opposite was true. The Great Purge Amid confusion and resistance to collectivization in the countryside, agricultural productivity dropped. This led to devastating food shortages. Millions died during the Great Famine of For many years the USSR denied the Great Famine, keeping secret the results of a census that would have revealed the extent of loss. Stalin eliminated all likely opposition to his leadership by terrorizing Communist Party officials and the public through his secret police. Millions more were deported, or imprisoned in forced labor camps known as Gulags. The Americans and British feared the spread of communism into Western Europe and worldwide. In , the U. The alliance between countries of the Western bloc was a political show of force against the USSR and its allies. The Cold War power struggle—waged on political, economic and propaganda fronts between the Eastern and Western blocs—would persist in various forms until the fall of the Soviet Union in He became Communist Party secretary in and premier in At home, however, Khrushchev initiated a series of political reforms that made Soviet society less repressive. During this period, later known as de-Stalinization, Khrushchev criticized Stalin for arresting and deporting opponents, took steps to raise living conditions, freed many political prisoners, loosened artistic censorship, and closed the Gulag labor camps. Members of his own political party removed Khrushchev from office in Many early projects were tied to the Soviet military and kept secret, but by the s, space would become another dramatic arena for competition between dueling world superpowers. The success of Sputnik made Americans fear that the U. He inherited a stagnant economy and a crumbling political system. He introduced two sets of policies he hoped would reform the political system and help the USSR become a more prosperous, productive nation. These policies were called glasnost and perestroika. It addressed personal restrictions of the Soviet people. Glasnost eliminated remaining traces of Stalinist repression, such as the banning of books and the much-loathed secret police. Newspapers could criticize the government, and parties other than the Communist Party could participate in elections. Under perestroika, the Soviet Union began to move toward a hybrid communist-capitalist system, much like modern China. The policy-making committee of the Communist Party, called the Politburo, would still control the direction of the economy. Yet the government would allow market forces to dictate some production and development decisions. Collapse of the Soviet Union During the s and s, the Communist Party elite rapidly gained wealth and power while millions of average Soviet citizens faced starvation. Bread lines were common throughout the s and s. Soviet citizens often did not have access to basic needs, such as clothing or shoes. The divide between the extreme wealth of the Politburo and the poverty of Soviet citizens created a backlash from younger people who refused to adopt Communist Party ideology as their parents had. In the s, the United States under President Ronald Reagan isolated the Soviet economy from the rest of the world and helped drive oil prices to their lowest levels in decades. A loosening of controls over the Soviet people emboldened independence movements in the Soviet satellites of Eastern Europe. Political revolution in Poland in sparked other, mostly peaceful revolutions across Eastern European states and led to the toppling of the Berlin Wall.

By the end of , the USSR had come apart at the seams. The Soviet Union ceased to exist on December 31,

6: Russia - Energy

The legacy of the Soviet Union lives on in the infrastructure of Central Asia. As it crumbles, or gets patched up, much of what was built in Central Asia is the backbone of the existing infrastructure for transportation, goods delivery and energy distribution.

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