

95th Congress }
2d Session }

COMMITTEE PRINT

THE SOVIET OIL SITUATION:
AN EVALUATION OF CIA ANALYSES
OF SOVIET OIL PRODUCTION

STAFF REPORT
OF THE
SENATE SELECT COMMITTEE
ON INTELLIGENCE
UNITED STATES SENATE



MAY 1978

Printed for the use of the Select Committee on Intelligence

U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1978

SENATE SELECT COMMITTEE ON INTELLIGENCE

(Established by S. Res. 400, 94th Cong., 2d Sess.)

BIRCH BAYH, Indiana, *Chairman*

BARRY GOLDWATER, Arizona, *Vice Chairman*

ADLAI E. STEVENSON, Illinois

CLIFFORD P. CASE, New Jersey

WILLIAM D. HATHAWAY, Maine

JAKE GARN, Utah

WALTER D. HUDDLESTON, Kentucky

CHARLES McC. MATHIAS, Jr., Maryland

JOSEPH R. BIDEN, Jr., Delaware

JAMES B. PEARSON, Kansas

ROBERT MORGAN, North Carolina

JOHN H. CHAFEE, Rhode Island

GARY HART, Colorado

RICHARD G. LUGAR, Indiana

DANIEL PATRICK MOYNIHAN, New York

MALCOLM WALLOP, Wyoming

DANIEL K. INOUE, Hawaii

ROBERT C. BYRD, West Virginia, *Ex Officio Member*

HOWARD H. BAKER, Jr., Tennessee, *Ex Officio Member*

WILLIAM G. MILLER, *Staff Director*

EARL D. EISENHOWER, *Minority Staff Director*

AUDREY H. HATRY, *Chief Clerk*

THE SOVIET OIL SITUATION: AN EVALUATION OF CIA ANALYSES OF SOVIET OIL PRODUCTION

President Carter announced in a television news conference on April 15, 1977, that the CIA had provided him with a report showing that the world energy situation was more pessimistic than generally believed and that he was going to use that information to build up support for his forthcoming energy plan.¹ Newsmen who contacted the CIA on the following morning were told that the report was classified and could not be released. That was later amended to state that the Agency had been directed to withhold the study until after the President's nationally televised fireside chat on April 18, since the President was going to quote extensively from the report at that time.

Within 2 weeks after President Carter's news conference, two CIA reports were made public. "The International Energy Situation: Outlook to 1985" was released on April 18, and "Prospects for Soviet Oil Production" on April 25.

On April 26 Admiral Stansfield Turner, Director of Central Intelligence, appeared before a House Energy Subcommittee and repeated the central findings of the "International Energy Situation" study but went further in stating that those findings were based on information about global energy conditions—especially in the U.S.S.R.—which were not available to other forecasters. He also repeated the one conclusion which would come under increasing criticism in the future: The Soviet Union would be a substantial net importer of oil by the mid-1980's.

On the day following Admiral Turner's House appearance, the New York Times editorialized that the CIA had been misused in that the timing of the declassification of the report suggested that it was politically motivated and that the facts had been "cooked" to fit the President's recipe.

SENATE SELECT COMMITTEE ON INTELLIGENCE INTEREST

Because of the importance of these questions, the Senate Select Committee on Intelligence decided to make an evaluation of the integrity of the analytical process and an evaluation of quality of the CIA's energy studies. The committee addressed the following questions:

1. Did the analytical or estimative process respond to the Administration's preferred outcome?
2. Was the manner and style of the release of the CIA information appropriate?

¹ The President said the report showed that "world oil reserves" had been overstated. Technically that was incorrect since the CIA report did not go into the question of oil reserves. Rather, it covered only energy production up to 1985. Unfortunately, this distinction was lost in the public coverage.

3. How was the study on future Soviet oil production received by the public and by other petroleum analysts?

4. What is the track record of the CIA on the subject of Soviet oil?

5. On what sources of information did the CIA base its estimate?

The first two questions have to do with the integrity of the analytical process, while the remaining three are an attempt to address the question of the quality of intelligence. While both of the CIA reports mentioned above directly or indirectly addressed energy matters broader than the production of Soviet oil, this committee's investigation is limited to the Soviet oil production question.

INTEGRITY OF THE ANALYTICAL PROCESS

The CIA's Office of Economic Research (OER) has been following Soviet oil production for many years. The prevailing estimate for the last 10 years in the CIA, as well as in the oil industry, has been that Soviet oil production would rise with gradual slowing into the 1990's without any significant declines. A published CIA study, "Soviet Long-Range Energy Forecasts," completed in September 1975 reflected this position. As early as 1970, however, some analysts within OER began to pick up some clues from various Soviet open sources that the future of Soviet oil production might not be as optimistic as previously believed.

These clues were mainly in the form of what appeared to be Soviet manipulations of reporting classifications in an attempt to enhance the appearance of growth. As a result of these clues, some Agency analysts began talking about a rather dramatic and immediate decline in Soviet oil production. Had there been any confirmation of this new prediction, the CIA probably would have accepted this more pessimistic view 4 years before they finally did.

The new prediction was not confirmed at this time, however. Soviet production continued to rise. It was not until early 1975 that other pieces of evidence began to fit into a larger picture which once again suggested that the Soviets were going to face declining oil production. Among other things, it was not until 1975 that the CIA understood the greatly increased pumping capacity made possible by the purchase of large numbers of U.S. made high-capacity submersible pumps.

These pumps allowed the Soviets to lift more fluid from the wells which were being flooded with water in an attempt to force more oil out of the ground. One CIA analyst estimated that these pumps alone could have accounted for an additional 1 million barrels a day. Some examples of other new information which became available early in 1975 include: A Soviet failure to meet annual drilling plans during the 1971 to 1975 period; a rapidly increasing water flooding in some key oil fields; data on maximum production capacity in West Siberian oil fields which fell short of the level of oil production planned for this region in the 1976-80 period; indications that oil production in Tatar A.S.S.R., the largest producing area in the Urals-Volga region, would begin to fall after 1975; and the absence of any Soviet reporting on the discovery of any large new oil reserves, which would have been necessary to offset the depletion of the existing reserves.

Thus, through 1975 and into 1976 there were, in effect, two sets of analysts in OER; those who accepted the more traditional view that Soviet oil production would continue its gradual growth rate, at least through 1980 with major production problems not occurring until after 1980, and those who felt the period of production shortages was more imminent. The Director of OER encouraged both groups to continue their efforts as an exercise in competitive analysis. As the two groups independently refined their analyses through the summer and fall of 1976, it became increasingly clearer to both groups that Soviet oil production was going to face some serious problem years. By the end of the year, OER accepted the notion that severe production problems were going to occur. Differences still existed over the approximate date the decline would begin. The study which eventually was published in April 1977 contained both views as a "worst case" and a "less than worst case" projection.

President-elect Carter was made aware of the general thrust of the Soviet oil studies through briefings by OER analysts prior to his inauguration. A classified version of the global energy study was made available to President Carter in April. It was this report to which the President referred in his April 15 press conference and it was the immediate interest generated by this reference which brought about pressure from the press to release the global energy paper.

The public pressure was received warmly by Admiral Turner who had already made plans to make more CIA economic and technical studies available to the public. At the request of Admiral Turner, OER declassified and released two studies which had not originally been planned for public use: The global energy study and the Soviet oil production study which was needed to support the controversial projections made in the global study. OER had been working toward using the Soviet oil production information in a broader paper on the Soviet economy scheduled for release later in the summer of 1977.

The prediction on Soviet oil production is speculative. No one should underplay the tentative nature of any predictions of this sort—even about U.S. oil production in the future. But the committee is of the view that in this particular effort, the integrity of the analytical process was not compromised in any way. The analysts pursued their hunches and hypotheses without any pressure to conform to any particular view.

Committee staff has traced the origins of the new and much more pessimistic forecast back through fall 1976, much too early to have been "cooked" to fit the President's recipe. The committee staff could find no evidence that the integrity and independence of the analytical process, in the case of the prediction about Soviet oil production in the 1980's, was compromised in any way.

On the question of whether or not there were political motivations behind the release of the CIA research, the answer is quite simple: There were. President Carter said he was going to use this information to build support for his energy plan. The conditions which should govern a President's timing and publicly acknowledged use of analytical work performed by an intelligence agency with access to information generally not available to others for domestic political purposes are not clear. The answer in which the President publicly cited the CIA information in this case at a time when it had not yet been re-

leased to the public, however, understandably gave rise to questions about his use of the intelligence.

The Senate Select Committee on Intelligence, its predecessor committee (the Church committee), other committees of Congress, and many public groups have advocated greater distribution of CIA information relating to economic and scientific matters. This committee believes it is proper for a President to cite publicly intelligence information in support of a particular public proposal, as long as this can be done without compromising any sensitive sources or methods used in collecting the intelligence and the information is made available to the public so that others may gauge the soundness of the argument. If an administration chooses to cite intelligence data to support policy choices in a public debate, it should be intelligence which, in a general sense, can be made public. All of the information needed to evaluate the strength of OER's conclusions about Soviet oil production was made available to the public by July 1977.

THE QUALITY OF INTELLIGENCE

Evaluating the quality of the CIA predictions about Soviet oil production is much more difficult than was determining the integrity of the analytical process. The following section is an attempt to evaluate the accuracy of the CIA predictions about Soviet oil production. After summarizing the central points of the two CIA publications regarding Soviet oil production, there follows a summary of early public reactions to the studies; the results of an informal poll of 25 private and Government oil experts as to their reactions to the studies; subsequent CIA statements about Soviet oil production; the CIA track record on Soviet oil; and the committee's critique of the studies.

What the CIA studies said.—The earlier of the two studies, "Prospects for Soviet Oil Production," said that because of a variety of factors (poor production techniques, exploration delays, development difficulties, et cetera) Soviet oil production was going to peak in the early 1980's and that the Soviets may face difficulties in the mid-1980's meeting their own petroleum needs. "More pessimistically," the report said, "the U.S.S.R. itself will become an oil importer."

The CIA study acknowledged that this was a short-term problem since Soviet energy resources potentially were very large and could, in the long run, be adequate to meet Soviet domestic and export needs. The adverse climatological character of the regions in which those reserves were located, however, would delay actual production from those regions for over 10 years, according to the study.

The second report, "The International Energy Situation: Outlook to 1985," considered Soviet oil production as a part of global energy developments. It was this particular study's comments on Soviet oil production which evoked the widest criticism of the CIA studies. Building on the projected Soviet oil production shortage mentioned in the earlier study, this study detailed the specific effects of that shortage and its wider implications. "We estimate that the Soviet Union and Eastern Europe will require a minimum of 3.5 million barrels per day of imported oil by 1985. At worst, slumping production could lead to import requirements as large as 4.5 million barrels per

day." These two sentences acted as a Leyden jar attracting a fairly wide range of criticisms.

Public reactions.—Even before the CIA report was made public, the Washington Post stated on April 16, 1977, that "sources" were describing the CIA work as being based on estimates of global trends in production and consumption which were furnished by private oil companies. Ralph Nader, the article said, questioned the credibility of the CIA report and said that it all sounded like collusion between the oil-producing countries and the oil industry to justify continuing price rises. The first report, "The International Energy Situation: Outlook to 1985," was released on April 18 and "Prospects for Soviet Oil Production" was released on April 25. The releases did nothing to allay the public criticism.

The Washington Star carried an Associated Press story on April 25 juxtaposing the very pessimistic conclusions of the CIA's study with, what it believed to be, more optimistic conclusions disputing the CIA figures from a U.S. group. This story is typical of the kinds of problems which many have had in trying to interpret the meaning of various oil studies.

The U.N. group turned out to be a U.N.-sponsored conference on the subject of future sources of energy whose main conclusion was that "oil would remain the world's most important hydrocarbon source of energy for many years to come." Rather than disputing the CIA study, the U.N.-sponsored conference was held 9 months prior to the release of the CIA studies and said nothing about short-term oil production in the Soviet Union.

On April 27, the New York Times editorialized that the CIA had been misused in that the timing of the declassification of the reports gave evidence that their release was politically motivated and that the facts had been "cooked" to fit the President's recipe.

A New York Times feature story of April 28 claimed that the "CIA's forecast of oil shortage is disputed in private reports." The two reports mentioned were (1) a Stanford Research Institute report issued several months prior to the release of the CIA reports and (2) a National Economic Research Associates of New York "appraisal" suggesting that the CIA reports were much too pessimistic. In both cases, there was some confusion between long- versus short-term analysis and between reserve versus production shortages. As the article commented, "the issues are complicated and the approaches taken in the various reports differ. The typical citizen or Member of Congress who is not a specialist in economics or research analysis may find it difficult to decide which of the forecasts is right."

One of the more perceptive public criticisms which appeared in the same edition of the New York Times (April 28) was a guest editorial written by Dr. Marshall I. Goldman, associate director of the Russian Research Center at Harvard University. Goldman wrote that "the general conclusion [of the CIA report] is not wrong, but parts of the analysis appear to be incorrect." He was particularly critical of two points made by the CIA. In the first place, Goldman did not believe that the Soviet Union and Eastern Europe would become a net importer of oil since he did not accept the Agency's projection of declining Soviet production. Second, even if production failed, the

Soviet Union would not be able to obtain the hard currency necessary to finance imports on the scale projected by the CIA studies.

Two other studies are worth mentioning. Shortly after the publication of the two CIA studies, the Workshop on Alternative Energy Strategies (WAES), working under the auspices of the Massachusetts Institute of Technology and under the direction of Dr. Carol L. Wilson, published its report, "Energy: Global Prospects to 1985-2000." The WAES study is perhaps the only study more pessimistic than the reports published by the CIA. The WAES projects, at worst, a 15 to 20 million barrels per day global shortage of oil by the year 2000. The CIA projection is to 1985 and predicts an approximate global shortage of around 7 million barrels per day. The WAES study did not make specific projections about Soviet oil production and, hence, is not directly comparable with the controversial CIA prediction about Soviet oil imports. Methodologically, both the WAES and the CIA studies project future energy needs as a function of general economic growth.

A Library of Congress study, released on June 26, was headlined in the Washington Post as "disputing" the CIA's Soviet oil forecast. The study said that "Soviet needs and planned commitments require it to be a modest exporter of oil and natural gas to the hard currency Western industrialized nations and to Eastern Europe throughout the period of the 1970's and 1980's." The report went on to suggest, however, that Soviet oil production could well begin to diminish in the 1980's unless the Russians were able to bring the Siberian fields on line.

When contacted by committee staff, the author of the Library of Congress study said that the newspapers had given a false impression through its headline and description of his study. He said that, with the exception of the 3.5 to 4.5 million barrels per day import projection, he was impressed with the CIA study and that his study generally did not dispute it.

Poll of oil experts.—Since the CIA studies in question were public reports, the committee staff contacted some two dozen oil experts from private industry, academia, and the Government and asked them to assess the CIA studies.

Most of those polled had favorable comments to make about the general work of the CIA's Office of Economic Research. The two reports in question were described as timely, important, and worthy of serious consideration but flawed by the absence of any methodological explanations.

Those most critical of CIA's oil studies felt that OER's focus was too narrow and that it did not sufficiently take into account broader questions affecting the Soviet oil future, such as pricing, conservation, and fuel substitution.

On the projection that the Soviet Union and Eastern Europe could be importing up to 4.5 million barrels per day by 1985, however, most of those polled disagreed. Nearly everyone interviewed felt that the Soviet Union would be able to avoid becoming a net importer of oil in the 1980's. Most of the experts consulted by the SSCI believed that the totalitarian nature of the Soviet system would more easily allow centralized diversion into other energy sources, rigorously enforced conservation practices, and greater control and manipulation

of the economy than is possible in a free economy. As a major New York oil consultant said, "The Soviet Union does not have to function like a market economy and thus it is difficult to predict how it will react to supply and demand situations." He went on to state that "the Soviet Union could reduce consumption very quickly if they really wanted to through administrative decisions. It could also move heavily into coal or gas or other areas if it needed to."

For example, an FEA analyst felt that the 3.5 to 4.5 figures were a little too pessimistic and that they had been arrived at by assuming a "rather direct causal relationship between economic growth and energy needs into the future. This is a rather standard assumption but may not always be a safe one to make." An oil industry analyst said that "the 3.5 to 4.5 number is just too high of a number and is not a probable outcome." But, he went on to say, "That is the only number in the study that we have trouble with."

A leading academic specialist consulted by the committee staff thought that the 3.5 to 4.5 figures were too high and that the Soviet system would be able to take appropriate steps to prevent becoming a net importer of that magnitude. On the other hand, he believed that the CIA had performed a valuable service in calling attention to the peaking and subsequent decline of Soviet oil production. He felt, as did most of those consulted, that if the CIA analysts had erred, they did so by neglecting to trace the impact this decline would have on the domestic economy as the Soviets searched for policy alternatives.

Marshall Goldman's New York Times criticism of the study concentrated on this impact. He pointed out that an implication of the prediction that the Soviet Union will become a net importer is that the Soviet Union would not be exporting its present 1 million barrels a day. That would mean a net impact on the world market of 4.5 to 5.5 million barrels per day and would, in turn, create a serious drain on the Soviet Union's scarce sources of hard currency. Goldman concluded that "the issue is not whether the Soviet Union will ever run out of petroleum—it will, but it will take much longer than the CIA says before the Soviet Union becomes the cause of the tightened market."

An interpretation of what the CIA said.—The CIA's "International Energy Situation: Outlook to 1985," which contained the 3.5 to 4.5 million barrels per day import forecast, is an examination of the relationship between global oil supply and demand up to 1985. In essence, it is a projection of global economic growth from which is derived energy consumption. The Agency analysts assumed relatively constant conservation measures and did not attempt to assess the impact of conservation or energy policy changes. They did consider the estimated size of non-oil energy supplies. Government exploration and development policies, oil reserves, existing contracts, and development time estimates.

The forecast that the Soviet Union and Eastern Europe will be importing 3.5 to 4.5 million barrels per day by 1985 must be read in light of the analytical technique used. In effect, the study said that in the absence of any significant improvements in conservation practices, in the absence of any major cutbacks in the rates of economic growth,

and in the absence of the kinds of fairly rapidly enforced shifts in patterns of energy consumption of which the Soviet Union may be capable—in the absence of these kinds of developments, the Soviet Union and Eastern Europe will need to import 3.5 to 4.5 million barrels per day by 1985. In light of the analytical techniques used by the CIA oil experts, the import projection should be read as a worst case analysis with other variables remaining relatively constant.

If the study is to be faulted, it ought to be faulted for its lack of clarity on that methodological point. It is not clear, on first reading, that the conclusion about Communist bloc oil imports in 1985 is really a tentative conclusion based on a number of assumptions which may not obtain in reality. Interviews with senior analysts in the Office of Economic Research (OER), the office responsible for the studies, support this observation.

Walter McDonald, former Deputy Director, OER, and Ronald Smith, Chief, Industrial Nations Division, told committee staff that they also agreed with the critics who have said that it is highly unlikely that the Soviet Union and Eastern Europe will be importing 3.5 to 4.5 million barrels per day of oil by 1985. According to Smith, that is the amount “they would need to import if they continued to grow at the present rate and if conservation practices and other Government policies remained relatively constant.”

McDonald told committee staff that he “does not believe that the COMECON countries will be importing that kind of oil but that the data suggests that they will have to do so unless they make some other major policy decisions.” He said that the Soviets “will do virtually anything to prevent them from becoming an oil importer of that magnitude.”

Both McDonald and Smith said they were well aware of the hard currency problem. McDonald stressed that “the Soviets cannot afford to lose that kind of hard currency in the international oil market.”

Admiral Turner, in his appearance before the House Subcommittee on Energy and Manpower of the Committee on Interstate and Foreign Commerce on April 25, 1977, after stating the less arguable prediction that Soviet production will peak by the early 1980's, went on to state quite clearly the one point which OER analysts told committee staff they wished they had not made. “We estimate that in 1985 the U.S.S.R. and Eastern Europe will need net imports of 3.5 to 4.5 million barrels per day,” said the Director. Again, there were no caveats nearby; however the sentence can still be “explained” in such a way as to fall short of predicting that such an amount will be imported.

Additional CIA Soviet oil studies.—Prompted in part by the criticism that their observations about the future of Soviet oil production were not supported by an explanation of how their conclusions were reached, and also prompted by Admiral Turner's desire to make open as much intelligence information as reasonably could be done, the CIA continued to release studies relating to the Soviet oil situation.

On May 26, 1977, a draft paper entitled “Soviet Reserves of Crude Oil,” was given limited public circulation. Parts of that paper plus additional discussions of a wide number of Soviet oil-related issues, including Soviet drilling and production techniques and requirements, were put together and published in “A Discussion Paper on Soviet Petroleum Production” for a meeting of the Advisory Committee on East-West Trade on June 20, 1977.

The most significant aspect about the May 26, 1977, "Draft Paper" and the June 29, 1977 "Discussion Paper" is that, while they attempt to answer the critics' charges that the earlier papers were lacking in methodological explanations by giving detailed data and analytical techniques, at no place do they repeat the most controversial conclusion of the earlier paper that the Soviet Union and Eastern Europe will become net importers of oil up to 3.5 to 4.5 million barrels per day by 1985.

The absence of any reiteration of that point would seem to suggest that the Agency had backed off in the face of fairly widespread lack of support throughout the oil industry and the academic community. There was no backing off, however, from the logic which led to the conclusion about Soviet oil production. The draft and the discussion paper make a strong case that the Soviet oil industry is in difficulty and that petroleum production is peaking and will be declining in the near future.

When several members of the panel who had evaluated the earlier papers for the committee were repelled by committee staff about the discussion paper, they unanimously agreed that it provided needed information on research techniques and noted that it had not repeated the controversial conclusion about the Soviet bloc becoming a net importer of oil. To a considerable degree, the discussion paper seemed tailored to meet the objections of the critics of the earlier papers—it provided the "data and analysis employed in the recent CIA study on the Soviet oil industry" and it discussed the options available to the Soviet Union to avoid the adverse consequences of declining oil production. Moreover, it avoided the most controversial part of the earlier work by addressing itself to larger global energy concerns.

In July of 1977 the CIA published a more complete description of the Soviet energy situation. This study considered energy in the context of the overall Soviet economic condition. "Soviet Economic Problems and Prospects," outlined the problems created by a declining energy supply and complicated by a shrinking labor force. It also outlined the options available to the Soviet Government.

This study did what some CIA analysts said they meant to do from the beginning and what academic and industry critics said was missing in the early papers. It repeated the earlier estimate of Soviet oil production in 1958 of 8 to 10 million barrels per day, but it estimated some possible effects of conservation and fuel substitution policies on oil consumption.

According to this study, if the Soviets could reduce energy consumption through conservation by 2.5 percent (a figure the CIA estimates to be reasonable without explaining its derivation), then the U.S.S.R. could "cut oil consumption to 9.4 million barrels per day by 1985, compared with 10.1 million barrels per day under a business-as-usual regime.² If production in 1985 turns out to be in the upper portion of our projected range (8 million to 10 million barrels per day), domestic requirements could be covered. Even then, however, the U.S.S.R. would lose its exports of oil for hard currency and would have to cut back oil shipments to its client states in Eastern

² The CIA apparently here assumes that if all of the 2.5-percent energy conservation reduction were to take its effect on oil consumption, the result would be savings of 700,000 barrels per day (from 10.1 to 9.4) which is a 7-percent reduction.

Europe. On the other hand, if production falls below 9 million barrels per day in 1985, successful conservation and substitution measures that reduced domestic demand to 9.4 million barrels per day would not prevent the U.S.S.R. from having to import a great deal of oil on its own account" (p. 14).

That statement is a far cry from the 3.5 to 4.5 million barrels per day statement in the earlier study. It makes clear that there is a range of alternatives and that such things as conservation and substitution are important variables.

Later in the study, the CIA analysts tie these production developments to the international market.

Under any but optimistic scenarios for oil production, and in the absence of a high-priority campaign to save oil domestically, the U.S.S.R. will shift from earning to spending hard currency in its oil trade. The difference between selling 1 million barrels per day (as in 1976) and buying 2.7 million barrels per day (the projection for 1985 that assumes no conservation efforts) is \$17 million in 1977 prices, more than the U.S.S.R.'s total 1976 hard-currency imports (p. 22).

A footnote explains how the 2.7 million barrels per day import figure for 1985 was derived:

Comprising 1.6 million barrels per day for reexport to Eastern Europe and 1.1 million barrels per day for domestic consumption (the difference between projected consumption of 10.1 million barrels per day and projected production of 9 million barrels per day.) An earlier CIA study, "The International Energy Situation: Outlook to 1985" (April 1977), estimates combined Soviet and Eastern Europe oil imports in 1985 at 3.5 to 4.5 million barrels per day. This range is consistent with the base line forecast made in this paper on the assumption that the Soviet Union makes no special new effort to save oil. There is a difference in coverage, however. The earlier estimates include Romania and Yugoslavia while those in the current study do not because these two countries, unlike the others in Eastern Europe, are not considered Soviet clients for this purpose; that is, the U.S.S.R. would not be expected to make up their energy deficits. There have also been some changes in the forecast about oil in the U.S.S.R. and Eastern Europe but these largely cancel out. If Romania and Yugoslavia are included, the current base line forecast is 3.9 million barrels per day or close to the midpoint of the range in the earlier paper.

Unlike the earlier estimate, the present forecast considers the possible impact of additional energy savings due to new Soviet policies. With additional savings of 2.5 percent, all in the form of oil, the U.S.S.R. and Eastern Europe would need to import 2.5 million barrels per day in 1985, or 2.9 million barrels per day including Romania and Yugoslavia.

In effect, the Agency did not retreat from its earlier projections but now states with greater clarity the range of alternatives and the assumptions on which those alternatives rest. It is unfortunate that

it took 3 months and three additional studies to state clearly what the analysts say was intended in the first of the studies.

CIA track record.—It is not easy to determine the accuracy of past CIA forecasts. For one thing, Agency analysts have not produced an annual forecast of Soviet oil production. They have produced a number of relevant studies which relate to this area, but comparisons are difficult because of the absence of a standard format or design for the display of these data. Some publications have concentrated on Soviet oil imports, others on exports, others on the total Soviet energy situation, and other such studies. The varying focuses of the occasional reports also give rise to another problem. A paper on prospects for continued Soviet petroleum exports will focus quite narrowly on that topic to the exclusion of broader economic and political considerations. A study of Soviet production goals for power and fuels may likewise ignore other sides of relevant considerations. Occasionally a broadly based study on the Soviet economy as a whole will be produced which will integrate information drawn from wider sources and based on more complete consideration. An approximate track record, however, is possible based on Agency publications back to 1970 which the committee staff reviewed.

In 1970, the Agency forecast Soviet oil production for 1975 to be between 8.81 and 9.21 million barrels per day. Another 1970 study predicted a single 9.01 figure for the same period. In fact, actual Soviet oil production in 1975 was 9.82 million barrels per day. The CIA forecast had been low, but for an interesting reason: The Agency analysts had assumed that U.S. export restrictions would remain relatively unchanged and that the Soviets would not be able to import desperately needed Western technology, particularly submersible pumps and drill bits. As those export restrictions were lifted, the Soviets purchased large amounts of the needed equipment and their production was greater than the CIA forecast.

In 1971, the CIA did another forecast up to 1975 and this time predicted Soviet oil production would be 9.81 to 10.01 million barrels per day, *if* the Soviets gained access to Western technology. Again, actual production in 1975 was 9.82. A 1972 study made a forecast for "the next few years" and projected Soviet oil production would be 9.19 million barrels per day. In 1973, 1974, 1975, actual production (according to CIA collections of Soviet statistics) was 8.58, 9.18, and 9.81, respectively. Again, the forecast was fairly close.

The longer range the projection, obviously, the greater is the probable error. In 1970 the Agency made a 10-year forecast of 9.01 to 10.01 million barrels per day in 1980. Six years later, in 1976, the Agency predicted 11.8 million barrels per day by 1980. Nevertheless, there has been a tendency for OER to emphasize problems in the Soviet oil industry.

The varying and complicated nature of the data in the CIA oil studies makes evaluation and comparison difficult. All of the CIA forecasts mentioned above pertain to annual oil production. Another area of great interest is that total oil reserves, that is, oil in the ground. One Agency critic, Marshall Goldman, in an unpublished study, "Some Critical Observations About the CIA Analysis of the Need For Soviet Oil Imports," cites CIA estimates of Soviet oil re-

serves to show that Agency forecasts have vacillated wildly and cannot be trusted. He cites three successive CIA estimates (1975, 1976, and 1977) of Soviet oil reserves as being 73, 36, and 30 to 35 billion barrels respectively, and concludes, "it is hard to see how the CIA has suddenly arrived at the figures it now wants us to accept." His point is that no respectable forecaster could possibly reduce his estimates by half (from 73 to 36 billion barrels in 1 year) and maintain credibility.

On this point, Goldman has apparently misread a particular CIA study. He cites a 1975 Agency study on Soviet long-range energy needs as estimating that the Soviet Union has a 73 billion barrels oil reserve. Actual Soviet oil reserves are difficult to ascertain for two reasons: (1) statistics are classified as Soviet state secrets; and (2) Soviet definitions of reserves do not coincide with those used in the West.

The Soviets use six categories of oil reserves, A, B, C₁, C₂, D₁, and D₂. The reserves in A and part of the B correspond to the "proven" category used in the United States. The rest of the B reserves plus some of the C₁ reserves correspond to U.S. "probable" category. However, some portions of both B and C₁ would be called "possible" by Western standards. The other categories, C₂, D₁, and D₂ are inferred reserves not established by testing. Unlike the U.S. definitions of "proved" and "probable," Soviet definitions do not specify that the reserves must be commercially exploitable at current prices and technology.

Since the 1975 CIA study itself does not clearly state what Soviet oil reserves are, Goldman had to infer such a figure. The data from which he made his inference are data about Soviet A + B + C₁ reserves but he should have applied his computations to the A + B categories only, which is the normal grouping for calculating Soviet oil reserves. By applying either of the two acceptable methods for computing oil reserves, one can infer a Soviet oil reserve estimate from the 1975 study of 36.5 to 43.8 billion barrels, a range well within the realm of conventional wisdom and not out of line with the CIA's later estimates. The CIA track record for estimating Soviet oil reserves may or may not be accurate—only time will tell—but, at least, it has been quite consistent.

Sources for CIA studies.—CIA analysts rely on a number of different sources, some confidential and some open. In the latter category, the Agency is capable of an exhaustive reading of Soviet oil journals. For the recent Soviet oil study, they utilized issues of 40 different Soviet journals. Much of the early work on Soviet oil involved the tedious searching of standard Soviet literature for bits and pieces of information.

One National Academy of Sciences energy expert said that he thought this was the great strength of CIA analysis. According to him, the CIA "is the only shop in the country which has access to such a vast number of Soviet journals and has trained personnel and data processing techniques which can read, classify, and retrieve such information."

The Agency also has access to a large number of American academic, industry, and government experts who study Soviet energy developments. Many of these are called on as formal or informal consultants. Additionally, there are a variety of energy experts who occasionally

travel through the Soviet Union, some of whom are willing to pass on their impressions to the Agency.

Moreover, as Soviet oil exploitation has become increasingly dependent on U.S. technology, the CIA has been able to estimate relationships between certain types of equipment purchases and oil development. The Agency has access to all U.S. exports records since these are public records.

The CIA also has access to various kinds of sensitive sources of information which remain classified. Some of this information has played a significant role in the Agency's study of Soviet oil.

CONCLUSIONS

The CIA's two unclassified studies, "The International Energy Situation" and "Prospects for Soviet Oil Production," have been generally well received. Most of the experts consulted by the SSCI had praise for the work of the Office of Economic Research; they liked the overall thrust of the two current studies about which their opinions were sought. Several of them, however, expressed both surprise and disbelief over the CIA estimate that the "Soviet Union and Eastern Europe will require a minimum of 3.5 million barrels per day of imported oil by 1985. At worst, slumping production could lead to import requirements as large as 4.5 million barrels per day."

CIA analysts have said that if they could rewrite that particular study they would definitely change that sentence. It lends itself to misinterpretation much too easily. It was meant to express the Agency's belief that unless the Soviet Union alters its energy consumption pattern, significantly increases its conservation practices, or greatly reduces economic growth and the oil consumption traditionally correlated with that growth, there will be a shortage of 3.5 to 4.5 million barrels per day of oil by 1985. No one in OEC believes the Soviet Union will import oil at that magnitude.

The later (July 1977) study, "Soviet Economic Problems and Prospects," gave OER a chance, in fact, to rewrite the "offending" sentence. This time they explained both a worst case and a best case scenario. They also considered the possible effects of conservation and substitution (a 2.5-percent reduction in energy consumption) as well as the effect of falling production on the domestic economy and international trade. There is no explanation of how the 2.5 percent was derived other than that it is a "highly subjective estimate" (p. 14).

This study reports that if all energy conservation is focused on oil consumption, then the Soviets could reduce oil to 9.4 million barrels per day by 1985. If, at the same time, oil production is on the high side of the CIA estimate (10 million barrels per day); then the Soviets would have enough oil to cover domestic needs. If, on the other hand, conservation is less successful and production is at the lower end of the CIA estimate (8 million barrels per day), then the shortfall of oil would need to be imported or, more likely, additional and more stringent steps would be taken by Soviet officials to prevent such an outcome.

Agency analysts have variously described the 3.5 to 4.5 import projection as a "terrible glitch" and a "simple error" in that normal supply-and-demand projections of the Soviet energy situation were

made and, according to one analyst, an "unwarranted assumption was made that any shortfall of oil automatically would be imported."

Given the favorable reputation which the Agency has among the majority of oil experts consulted by the committee staff, it is unfortunate that the caveats necessary to arrive at the correct conclusions were not clearly expressed in the early studies and in the assessment that was made by Admiral Turner before the House committee.

This error is unfortunate because it detracts from the attention which should be paid to the more fundamental and new conclusion made in the studies relating to the prospects for Soviet oil production and the difficult options such a development is going to present to Soviet leaders. It does appear that the Soviet oil industry is facing a difficult period. Recent Pravda articles seem to bear this out.³

There have been a number of newspaper stories reporting increasing difficulties in the Soviet oil industry. These stories have chronicled (1) the extreme difficulties the Soviets are having in developing oil fields in Siberia; (2) a Soviet warning to bloc countries that they may need to develop other sources for oil; (3) the attempt to develop Iran as an oil supplier for Eastern Europe; (4) the Soviet announcement that 1978's oil production would be only slightly higher than the previous year despite an earlier stated production quota much higher; and (5) the Soviet difficulties in trying to develop oil wells with its own technology, and therefore its increasing reliance on Western technology.

How the Soviets deal with the oil problem could have a serious adverse impact on the Soviet economy, the Communist bloc, and perhaps, even the Western world. The Agency has not backed away from this projection and most of the experts consulted by the committee staff think that the Agency may be right. No one will know for sure, of course, until 1985.

RECOMMENDATIONS

The following recommendations are based upon the committee's evaluation of the CIA's studies on Soviet oil production. They are focused on production and dissemination of finished intelligence by the Office of Economic Research.

- The release to the public of unclassified intelligence analyses is a good practice and should be pursued to the fullest extent consistent with the need to protect sensitive sources and methods. The CIA must not refrain, moreover, from releasing studies because they may run counter to the policies of a particular administration or popular wisdom. Sound, dispassionate analyses will facilitate ability of the public to evaluate both the analyses and the data on which report conclusions are based. Such public reaction as occurred in this case is healthy and should be encouraged.

- OER should produce annual or periodic studies of the energy situation in the Soviet Union which include more consistent displays of relevant data. This would allow easier comparisons and

³ An August 10, 1977, Pravda article was critical of those who expected oil at every drilling. It pointed out that prospectors and geologists in the Tyumen area had failed to fulfill last year's plan and were "not coping with this year's targets either." [FBIS translation.]

would also make retrospective evaluations of OER's predictive record easier. Where possible, regularly produced reports might help avoid appearances of pressure to support particular public policies. This, of course, would not affect the frequent but unperiodic publication schedule of OER.

- The practice of meeting with academic and industry petroleum experts should be continued. OER met several times with such outside experts during the course of their production of Soviet oil analyses and those meetings proved to be mutually enlightening.

- Finished intelligence products which are written by highly trained specialists should be reviewed by generalists with a more multidisciplinary view. This will enhance the likelihood of avoiding projections of technical outcomes which may be politically unlikely.

- The White House and the Director of Central Intelligence need to be fully sensitive to the responsibilities they bear in preserving the integrity of the analytical process and in creating confidence among Congress and the public that the substance and the circumstances surrounding the release of economic and scientific intelligence are free from undue pressure.