

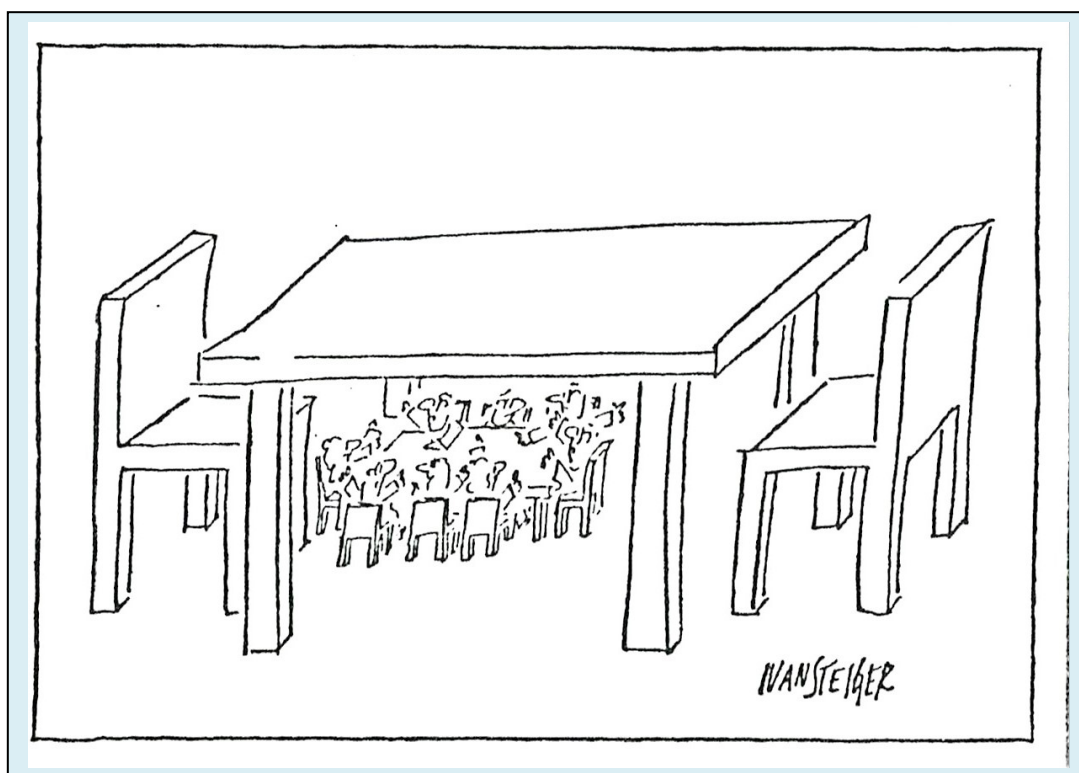
THE ECE ENERGY ACTIVITIES 1947-1958-1979-1991-2021

Tapping personal and institutional memories

by

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Geneva, September 2021

A Lesson in Diplomacy



¹ Sources: archives of the author (k.brendow@bluewin.ch) and of the UN Library at Geneva

This is the story of ECE's association with energy issues.

Generations of diplomats and energy practitioners met in Geneva since 1947,

- first, to attenuate the shortage of coal and electricity in post-war Europe,
- secondly, to maintain East-West energy trade and cooperation afloat during the “Cold War”,
- third, to promote the transition of supply-driven energy systems to greater efficiency and less pollution,
- now, to prepare a sustainable, possibly carbon-free, energy future till 2040,
- and to anticipate and attenuate the vulnerability and volatility of the newly emerging alternative energy systems.

This is also the story of those, who made things happen.

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I. AN INHERITANCE: THE COMMITTEES ON COAL AND ELECTRIC POWER 1947

Upon its creation in 1947², ECE inherited from the Supreme Headquarters of the Allied Expeditionary Forces SHAEF in London a Coal Committee and a Committee on Electric Power.

REPORT ON THE FIRST AND SECOND SESSIONS OF THE ECONOMIC COMMISSION FOR EUROPE, GENEVA, 2 TO 14 MAY 1947 AND 5 TO 16 JULY 1947 (E/451), 29 JULY 1947

Coal Committee

“The Economic Commission for Europe resolves

1. To establish a Coal Committee within its framework;

2. That the Coal Committee shall:

(a) Begin to conduct the activities at present performed by the European Coal Organization, such as allocation, promotion of increased supplies of coal, economic and statistical research, and the study of coal in relation to other economic problems, not later than 31 December 1947;

(b) Consider the long-term problem of coal, giving due consideration to the possible development of other sources of power;

3. That the Coal Committee shall act in a consultative capacity, report on its activities and submit its recommendations to the Commission on all matters excepting allocation, where recommendations may be made direct to Governments provided that any decision concerning allocation is taken with the approval of all Governments directly concerned; the Committee shall also be authorized to present recommendations directly to interested Governments which fall within its technical field of competence and do not involve any general principle or policy;...”

Committee on Electric Power

“At the second session, the Commission ... resolved to establish ... a Committee on Electric Power,

That the Committee on Electric Power shall

(a) Provide a forum for discussion and the exchange of information regarding all electric power and energy problems;

(b) Be empowered to initiate studies and make recommendations on the best utilization of available resources and on the best means of effecting the coordinated development of Europe's electric power, provided the Committee takes no action in respect to any country without the agreement of the Government of that country...”

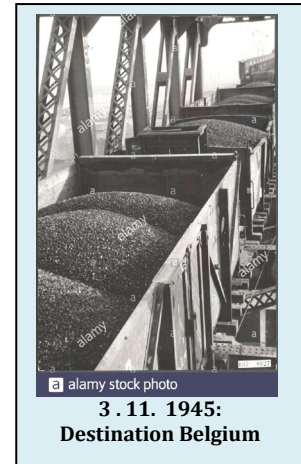
Under the aegis of ECE, these Committees were to

- address energy scarcity and war-damaged energy infrastructure in post-war Europe
- comprise all countries, including defeated nations
- absorb existing allied organisations on electric power and coal
- adopt a structure and programme by fuel industries
- enhance intergovernmental cooperation by public-private partnership.

The initial post-war approach to energy was by fuel industries.

² Vaclav Kostecky (1913-1982): The UNECE: The beginning of a history, Göteborg 1989 (Göteborg houses the archive of the first Executive Secretary of ECE, Gunnar Myrdal); V. Kostecky was secretary to the first four Executive Secretaries of ECE and secretary of the Commission.

- The Electric Power Committee was an outfit of the Allied Emergency Economic Committee for Europe – EECE, the Coal Committee of the Allied European Coal Organisation - ECO³.
- The Coal Committee⁴ was mandated to handle coal matters bearing in mind the other sources of energy. Till September 1950, it allocated some 60⁵ million t of (mostly German) coal to war-destroyed Europe. ECE as a retailer!
- Created in 1956, the ad hoc Working Party on Gas became a Committee in 1961⁶.
- ECE had no mandate to establish a body on oil because an ECE study in 1955 on the Price of Oil in Western Europe had irritated oil industry interests (see chapter VIII). In vain, the USSR, the Ukrainian SSR and Romania requested the creation of an oil committee at the 15th session of ECE in 1960⁷.
- There was no ECE body on nuclear power either, which was handled by the IAEA in Vienna. Nuclear power as part of the energy system could have been, but never really was, covered by ECE.
- As of the 1970s, new and renewable sources of energy were handled in studies, symposia and (as of 1991) by groups of experts.



In 1979, the three sectoral committees on coal, electricity and gas were joined (not yet “topped”) by the Senior Advisers to ECE Governments on Energy, in 1991 renamed Energy Committee and in 1997 Committee on Sustainable Energy.

³ Vaclav Kostecky, op. cit., p. 12. Created in May 1945, ECO took over the “Solid Fuels Section” (1944) of the Solid Fuels Division of the Supreme Headquarters of the Allied Expeditionary Forces SHAEF; one of its staffs, Mrs. Pavan, transferred 1948 from London to Geneva to serve the secretariat of the ECE Coal Committee till her retirement in 1981.

⁴ for a list of sessions and structures of the Coal and Electric Power Committees during 1947-1987 see Staff memoranda on page 17. The officers of the committees up to 1971 are listed in “The work of the ECE 1947-1972”, New York 1972, appendix F.

⁵ Three decades of the UNECE, New York, 1978, p. 79; also: UNECE Looking back and peering forward, Geneva 2007, p. 41 (ECE/INF/2007/4)

⁶ Commission resolution 6 (XVI): Three decades of the UNECE, op. cit., p. 74 ff (general), 78 ff (coal), 84 ff (gas) and 90 ff (el. power)

⁷ E/ECE/392, para 247 and page 34

II. ILL PREPARED: THE FIRST SPECIAL MEETING ON ENERGY PROBLEMS IN EUROPE, MARCH 1958

In March 1958, a First special meeting of government experts on energy problems in Europe (sic) was held⁸ which however had no follow-up “as the studies undertaken by the Secretariat were not sufficiently advanced” to fix a date for a second meeting.. Fact is, the program lacked focus and resources. Moreover, critical of the ECE 1955 oil study (see VIII), some western members were reluctant to entrust ECE with sensitive energy issues.

FIRST SPECIAL MEETING OF GOVERNMENT EXPERTS ON ENERGY PROBLEMS IN EUROPE, MARCH 1958; 15TH ANNUAL SESSION OF ECE, MAY 1960, E/3349 E/ECE/392

A. Report on activities

“para 177. In resolution II (XIV) the Commission recognized the potential usefulness of periodic special meetings on energy problems to analyse the over-all energy situation in Europe...

“para 178. Work has proceeded, within available resources, on the suggestions formulated by the first special meeting of government experts on energy problems held in March 1958 (E/ECE/310) as follows:

- (a) Determination of a common unit and of conversion factors to express the various forms of energy in that unit for the purpose of drawing up energy balances
- b) Study of methods enabling a comparison of the cost of production of electric energy generated by nuclear power stations and that generated by conventional thermal power stations
- (c) Comparison of costs of the various means of transport which could be envisaged for the same or for interchangeable forms of energy in Europe; and comparison of costs of storing the various forms of energy in Europe
- (d) Comparison of methods used for the determination of forecasting future energy needs
- (e) Role of various forms of energy in the future energy situation in Europe. The review, which will be based on an analysis of the energy situation in the individual ECE countries, will consider the problem of substitution of the various sources of energy against the background of the general energy situation in Europe, and examine the possible role of the various forms of energy in the present and future energy situation in Europe.

B. Discussion

“paras 377-380: a draft resolution inviting the Executive Secretary to fix the date of the next meeting was rejected “as the studies undertaken by the Secretariat were not sufficiently advanced”.

C. Resolution 9 (XV) on Energy problems in Europe

“The Commission...

1. Takes note of the communication of the Executive Secretary (E/ECE/377) to the effect that progress is being made with certain preparatory studies and the development of methods for appraising energy sources referred to in resolution 11 (XIV);
2. Requests the Executive Secretary to continue to give within available resources proper attention to energy problems in Europe so that any future meetings of experts can be adequately prepared;
3. Expresses the hope that sufficient preparatory work will have been completed by its sixteenth session to enable that session to take a further decision on the implementation of resolution 11 (XIV);
4. Requests the Executive Secretary to continue and complete as soon as possible the necessary studies and preparatory work on energy problems in Europe and to report back to the sixteenth plenary session on the progress made in implementing resolution 11 (XIV).”

(Note: there was no second meeting)

⁸ Report of the meeting: E/ECE/310 of 26 March 1958

III: BACKSTAGE: AN ENERGY DIVISION 1958

The three Committees were served by an Energy Division created on 1. 1. 1958⁹ with sections on coal, electric power and gas and, since 1979, a Unit on general energy problems (devoted to conservation, new and renewables, forecasts).

The first director was Pierre Sevette from 1957 to 1971, followed by Edmond Janssens (1972–1986), Klaus Brendow (1986-1993), George Kowalski (1995-2007), Frederik Romig (2008-2010) and Scott Foster (since 2011). In 1991, the staff of the Division was composed of a director, 10 professionals and 8 general service staff members, - a total of 19 (down from a total of 24 in 1974).

ECE/DO/76 19 December 1957

ECONOMIC COMMISSION FOR EUROPE

To: Division Directors
From: Executive Secretary, Sakari Tuomioja
Subject: Energy Division and
Steel, Engineering and Housing Division

Further to the circular ECE/DO/74 of 28 May 1957, the Energy Sections and the Steel, Engineering and Housing Section will be designated as Divisions as from 1 January 1958.

The Energy Division will service the Committees on Coal and Electric Power, and the ad hoc Working Party on Gas as well as the Special meetings of Experts on Energy Problems. The Director of the Energy Division is Mr. P. Sevette and the Deputy Director is Mr. P. O. Kjellström. Their functions, the internal structure and the composition of the staff of the Division remain unchanged as set out in the above-mentioned circular....

cc: members of the Office of the Executive Secretary
All staff members of the Industry Division
Administrative Assistants

The direct¹⁰ annual budget stood at 1.6 million \$; there were in addition the sponsored project “Energy Efficiency 2000” (4.27 million \$), its successor “Energy Efficiency 21” and as of 1994 the Gas Centre (2015 446.000 \$).

From 1986-1993, an “Energy Division Monthly” was used for internal communication and cohesion.

A decentralized data base contained 180 research files, by issue, country and organisation. The “Energy Series” was launched.

⁹ Predecessors were in 1948 an “Electric Power Division”, in 1950 a “Power and Steel Division” and in 1952 or 1953 an “Industry Division”.

¹⁰ Excluding apportioned costs for office space, conference services, the library and administration, at 1.35 million \$; the energy budget corresponded to 9 % of the ECE budget.

IV. AMBITIONS: THE SENIOR ADVISERS ON ENERGY 1979-1991

In 1979, ECE created on an ad hoc basis the Senior Advisers to ECE Governments on Energy to enable an integrated approach to energy.

DECISION B (XXXIV) ON ENERGY OF 27 APRIL 1979¹

The Economic Commission for Europe...

"2. Decides

to establish on an ad hoc basis a new Principal Subsidiary Body entitled Senior Advisers to ECE Governments on Energy with the following mandate:

- (a) To undertake an extensive exchange of information, views and experiences between member States on general energy problems, including an extensive exchange of information, views and experiences regarding energy resources and national objectives and policies in these areas;
- (b) To elaborate on the basis of the foregoing a programme of work, subject to annual review and approval by the Commission, taking into account the need for regular co-operation and coordination with the Committees on Coal, Electric Power and Gas, and cooperation with other Principal Subsidiary Bodies concerned; in this regard particular attention should be given to the decision E (XXXIV), and to the suggestions made by the Executive Secretary as contained in document E/ECE/932/Add.1;
- (c) To examine problems related to a possible High-Level Meeting on energy organized within the framework of the ECE;

3. Declares its willingness

to consider, as of its next session, an assignment to the Senior Advisers to ECE Governments on Energy for the exploration of topics for a possible high-level meeting on energy within the framework of ECE on the assumption that satisfactory progress has been made in all areas of the mandate of the new body;

4. Further declares its willingness

to consider as of its next session the advisability in the light of the progress achieved in the field of energy, of making the newly created ad hoc body a permanent one

5. Decides

to consider at a future session proposals by member States or by the Executive Secretary in consultation with member States, designed to increase the effectiveness of the energy activities and programs of all ECE bodies dealing with energy... "

A first meeting took place in Geneva from 29 October to 1 November 1979. Half a year later, in March/April 1980, the Commission at its annual session reviewed the work of the Advisers¹¹. Some delegations regretted the lack of progress in the preparation of the high-level meeting on energy, while others claimed that the request for a prior and far reaching exchange on information was not a pretext for delaying action.

The Senior Advisors became a permanent subsidiary body in 1980.

¹¹ E/1980/28, E/ECE/1008, page 69; also UN Yearbook 1979, p. 711

V. NUTS AND BOLTS: TECHNICAL COOPERATION 1947-1991

A. Public-private partnership

The interaction between ECE governments and industry on energy issues deserves a special comment. The terms of reference of ECE enabled experts from industry to participate as part of national delegations. Clearly, this enhanced the sense of reality and expertise that since then characterized ECE energy activities. True also, this approach usefully tampered the effects of Cold War and UN budgetary constraints, but also fused the respective roles, responsibilities and interests.

As a rule, Directors and staff were recruited from fuel companies, energy associations, ministries and State energy planning organisations. This facilitated contacts, networking and access to information and resources (symposia).

B. Cold War issues

The period from 1948 (Blockade of Berlin) and 1950 (Korean War) to 1989 (fall of Berlin Wall) and 1991 (collapse of the Soviet Union) is known as the “Cold War”. During this time, ECE was the only intergovernmental organisation where governments from East and West could meet on an equal footing and within a framework of mutually agreed rules. ECE, while observing utmost prudence in the face of controversial political issues, excelled in pragmatically developing cooperation in fields such as transport, environment, statistics, economic analysis, industry, chemicals, water, agriculture, forest products and energy. This cooperation stretched from exchanges of views to common analyses, unbinding recommendations, coordinated planning of international roads, standardization of trade documents, conventions on transboundary air pollution, classification of resources, safety norms (pipelines, compressor stations, vehicles), customs conventions and uniform traffic signs¹².

The energy program brought some 800 to 1200 delegates per year to Geneva. The focus was on “technical” cooperation, avoiding politically sensitive references to oil, pricing policies, market distortions, subsidies or limits of five-year planning. Decisions on programs, committee structures and the election of officers (by rotation East-West) were taken by a disguised unanimity rule called consensus. “Consensus” meant that an agreement was reached, if no delegation openly disagreed. This practice shielded the energy committees and staff from basic political and procedural hassle, provided they remained “technical”. Of course, the failure to reach consensus created numerous frustrations, but also challenged the secretariat to test options and “to go in-between”.

A sensitive issue during the Cold War was an all-European high-level meeting on energy proposed by the USSR and Poland within the framework of the CSCE in 1975¹³. An agreement on this proposal was not possible in Helsinki. Four years later in 1979, ECE created the Senior Advisers on Energy, on their own merit. But for some delegations the Advisers were supposed to pave the way to a later high-level meeting on energy, for others to preempt the issue.

A recurrent issue was the interpretation of the Quadripartite Agreement on Berlin (1971) as the German Federal Agency on Environment occasionally participated in the work of the Advisers. The location of this Agency in Berlin (West) was challenged by some members. In order not to disclose the participation of a challenged member during the meeting, the publication of a list of participants used to be deferred.

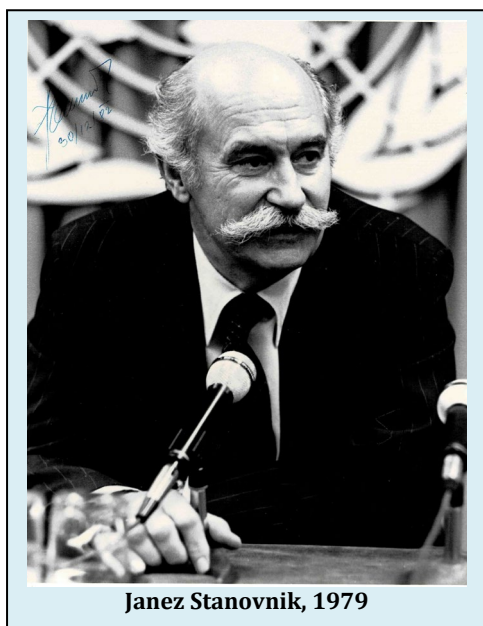
¹² Economic Commission for Europe (ECE), New York 1989

¹³ Conference on Security and Cooperation in Europe, Helsinki 1973-75; for a discussion in ECE, see the minutes of the Annual Session of ECE in April 1979 (ECE/1979)

The denomination of countries, design of maps and borders were under constant political scrutiny, prohibiting, for example, the publication of a Map of European Gas Networks (1986). The stumbling block: the uniform or different coloring of the territory of the Federal Republic of Germany and Berlin (West).

A linguistic “delicatessen” amongst the challenges was the denomination of the Federal Republic of Germany in Russian; if referred to in the genitive case (Федеративной Республики Германии), it gave the impression of the existence of two German States, acclaimed by some, denied by others. Statements and minutes excelled in either using or avoiding the genitive.

These political subtleties were entertained by the secretaries of the Geneva-based Permanent Missions and arbitrated in consultation with the Office of the Executive Secretary and the Executive Secretary himself: Janez Stanovnik (1968-1982), - a captain for rough seas.



The hassle frustrated the Division staff and chairmen who, supposed to organize a “technical” discussion, found themselves challenged on unfamiliar political and diplomatic ground.

(These antagonisms inspired two insider books, one a Cold War thriller¹⁴. the other a bitter description of tactics which delegates used to spoil an issue¹⁵.)

The “solution” to an imbroglio “in action”, was to interrupt the meetings for “consultations”. A couple of coffees in the “Delegates Lounge” and (in)formal invitations¹⁶ for dinner by staff members did not, and were not intended, to solve the basic issues, but at least prevented them from “rocking the boat”. Official records ignore by nature the important role the secretariat deployed in quiet diplomacy and personal hospitality.

As can be seen from the record below, staff, programs and committees absorbed those troubled episodes and achieved the goal: organizing technical energy cooperation in a politically sensitive environment.

C. The record

- the 1945-1950s: allocation of coal
- the 1950s: reconstruction of infrastructure, easing of energy shortage
- the 1960s: the “raid” of oil and gas, fuel substitution, technical and market studies, operations research, fuel statistics to become energy balances

¹⁴ Frederic Romig: Peace in our time, 2019, 311 pages, manuscript

¹⁵ M. A. Boisard and E. M. Chossudovsky: The UN System at Geneva – a Working Guide, Geneva, 1991, p. 259 on tactics used by unwilling delegates:

- the “black Peter” tactic, i. e. agreeing while expecting some other country to vote against
- the “hide and seek” tactic, i. e. advancing a mass of largely irrelevant rhetoric to make a proposal
- the “ping pong” tactic, i. e. suggesting that the proposal be better dealt with somewhere else and playing the same game there
- the “hurdles” tactic, i. e. advancing new conditions once the previously agreed had been met
- the “poker” tactic; i. e. expressing a general reluctance without showing your cards
- the “waiting for Godot” tactic, i. e. suggesting that the time was not yet ripe.

¹⁶ a „carton“ was useful for those delegates who needed to inform (and report to) their Permanent Missions.

- the 1970s and 1980s: oil price shocks, revival of domestic energy resources, low-calorie solid fuels, multi-fuel policies, projections and modeling of scenarios, east-west energy trade, joint ventures, electric power interconnections, pollution control, efficiency, renewables, supply of heat and cooling to buildings
- the 1990s: transition from central planning to markets, assistance to economies in transition on institutional and structural change
- the 2000s: sustainability, inter-sectoral (energy-environment-climate) interface, carbon neutrality, sustainable resource management, efficiency, gas, renewables.

Thus: in the 1960-1970s, “technical” cooperation prevailed due to political antagonism.

During the late 1980-1990s, détente allowed a more proactive approach in addressing issues of energy policy, transition and structural change. In these years, the output per year consisted typically of 20 studies, 10 workshops/seminars, 4 statistical bulletins, 2 publications in a newly created “ECE Energy Series” and 15-18 meetings serving 1200 delegates.

As of 2000, the interaction between energy use, the environment and the climate, i. e. sustainability, became priority, albeit under severe resource constraints.

VI. CRUISING: THE ENERGY COMMITTEE 1991-1997

AND SENIOR ADVISERS ON SUSTAINABLE ENERGY 1997- 2021

In 1991, desirous to harmonize the denomination of its subsidiary bodies, the Commission decided the Senior Advisers to become the Energy Committee, 1997 renamed Committee on Sustainable Energy. The former committees on coal, gas and electric power became groups of experts, - a downscaling which implied a loss of status and prompted the resignation of influential committee chairmen.

A. The first session of the Energy Committee, 12-14. 11. 1991

FROM THE MINUTES:

“The session was attended by representatives of twenty-four Governments and six intergovernmental organisations. It was chaired by Mr. Lambotte of France. The Vice-chairman was Mr. Szergenyi of Hungary.

The Committee

- reviewed the energy situation and prospects in Europe and North America, particularly in economies in transition
- set priorities, streamlined its program and subsidiary structure, and
- emphasized “outreach” activities of interest to other regions of the world.

The session reviewed new material submitted by the secretariat indicating that present energy strategies were becoming even less sustainable in the long-term than previously assumed.

- the energy efficiency “gap” between western and eastern Europe was widening again
- the depletion of domestic oil reserves was likely to put western and Europe and North America in a vulnerable position by the turn of the century, and while there was and will be programs in dealing with sulphur and nitrogen dioxide emissions, the outlook for carbon dioxide emissions was disconcerting.

(After discussion) the Committee asked

- the secretariat to start elaborating a sustainable energy development for the ECE region
- to prepare a follow-up version covering the second year of energy reforms in Central and Eastern Europe
- decided to establish an Ad hoc Group of Experts on renewable sources of energy
- approved its work programme for 1991-1995
- noted the oral report of the director of the Energy Division on resource use.”

Source: Energy Division Brief 27. 12. 1991

B. The record¹⁷

a. guidelines for norms, standards and classifications

- 1965: Safety of international gas pipelines
- 1970: Safety of international gas compressor stations
- 1988: International codification system for medium and high rank coals
- 1997-2000: energy efficiency norms and labels, under the umbrella of the UNECE Energy Efficiency 2000 and European Union Save programs
- 2001-2021: UN Framework classification of reserves/resources
- 2019: Energy efficiency standards and technologies in buildings

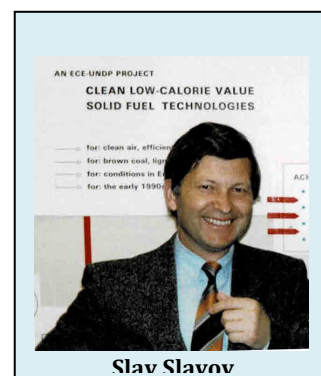
b. publications

¹⁷ most publications contain catalogues of (then) recent studies

- 1954. The relationship between coal and black oils in the west European fuel market
- 1955. The price of oil in Western Europe
- 1968: Movements of energy in Europe and their prospects
- 1969: Factors affecting the accuracy of energy planning and forecasting
- 1970: Methane recovery from abandoned coalmines; a follow-up publication 2010
- 1973: Preliminary report on some medium and long term problems of the energy economy of the ECE region
- 1974: Measures taken or which might be taken to achieve increased economy and efficiency in the extraction, conversion, transport and use of energy in the ECE region
- 1976: Increased energy economy and efficiency in the ECE region
- 1978: New issues affecting the energy economy of the ECE region in the medium and long term
- 1979: Energy reserves and supplies in the ECE region, present situation and perspectives
- 1980: The Economic Commission for Europe and energy conservation
- 1981: Energy problems and co-operation in the ECE region
- 1983: Energy transition in the ECE region
- 1984: Efficient use of energy sources in meeting heat demand
- 1984: Efficient use of energy in industry, in: ECE Economic Bulletin for Europe
- 1985: Waste energy recovery in industry
- 1986: Medium-term energy policies, perspectives and cooperation in Europe and North America to 1990, in: ECE Economic Bulletin for Europe
- 1986: Energy needs and sources in the ECE region –
- Elements for a reappraisal, in: ECE Economic Bulletin for Europe
- 1986: New and renewable sources of energy in the ECE region –
- Prospects, problems and policies
- 1986: Electricity demand, nuclear energy and international cooperation in the ECE region
- 1986: The Gas industry and the environment
- 1988: Energy efficiency in European Industry
- 1988: Energy balances for Europe and North America 1970-2000
- 1989: House of Commons, Energy Committee: UK/USSR energy relations, Minutes of evidence, Memorandum submitted by Dr. K. Brendow
- 1990: Underground storage of natural gas and LPG
- 1990: Clean combustion of brown coal and lignite
- 1990: Optimum of primary energy resources
- 1990: Rational use of electric power
- 1991: Sustainable energy developments in Europe and North America
- 1991. Energy reforms in central and eastern Europe – the first year
- 1991: Energy efficient design of building
- 1991: The future use of solar energy in electricity generation
- 2002-2021: see list of publications in the website of ECE Sustainable Energy Committee on sustainable energy transition, carbon capture and storage, financing of investments, pricing and subsidizing, efficiency, renewables, gas/LNG, methane, energy services, monitoring, networking and training

c. symposia

- 1958: Special meeting to examine the energy situation in Europe
- 1966: Optimum exploitation of energy supply for heat and air conditioning of large housing developments
- 1973: Model building in the energy sectors
- 1980: Improved techniques for the extraction of primary forms of energy
- 1982: Comparative merits of energy sources in meeting end-use heat demand
- 1983: Rational utilization of secondary forms of energy in the economy, particularly in industry
- 1983: ad hoc meeting on Energy conservation
- 1983. as hoc meeting on New and renewables sources of energy
- 1985: ad hoc meeting on Secondary energy resources



- 1986: East-West energy cooperation
- 1986: Low calorie-value solid fuels: combustion, gasification, liquefaction
- 1987: Status and prospects of new and renewable sources of energy
- 1987: Long term impact of energy efficiency improvements
- 1988: Optimum use of primary energy resources in final heat consumption
- 1989: Prevention of rock bursts and outbursts of coal, rock and gas
- 1990: Use of computers for gas transmission and distribution systems

d. regional operational projects

- 1975-1985: Interconnection of the electric power transmission systems of the Balkan countries
- 1986-1991: International co-operative research on low-calorie solid fuels technology (UNDP 142.000\$; governments 29 million \$)
- 1990s: Solar Applications and energy efficient building design

e. Energy Efficiency 2000, Energy Efficiency 21 and Global Energy Efficiency 21

1990-2000. After only two years of operation, this sponsored operational project (4.6 million \$) reported in 1993 contributions to 25 trade fairs and workshops with 2400 participants, a “Who is Who in Energy Efficiency”, two publications and thirteen demonstration zones. It provided analyses, policy recommendations on standard setting, technical assistance and pre-feasibility issues.

As of 2000, “Energy Efficiency 21” continued in the same vain: enhancing regional cooperation on energy efficiency markets and investments to reduce greenhouse gas emissions in economies in transition. Since 2000, investment projects in Belarus, Bulgaria, Kazakhstan, Russian Federation and Ukraine were financed with some 15 million \$ with a total estimated CO₂ saving of 136,000 t per year.

As of 2008, EE21 created an inter-regional extension “Global EE21” to mitigate climate change. In 2004, Global EE21 received the award “Climate is Business”.

f. Gas Centre

1994-2015: an extra-budgetary industry-financed project on ECE gas industry cooperation: unbundling/mergers, regulations (for instance third party access), investments, security of supply/diversification, LNG, globalization, new production areas, transit tariffs. Output: about 10 meetings per year in Geneva, conferences, workshops, a data base/website. Budget 2015: 446.000 \$.

g. Staff memoranda

- 1987: Peat and forest biomass as an energy source
- 1987: East-west energy relations: facts and options
- 1988: 40 years of ECE activities in the field of electric power
- 1988: 40 years of ECE activities in the field of coal
- 1988: Development prospects of east-west energy relations
- 1989: General energy activities 1954-1989
- 1990: 20 Years of international cooperation in underground hard coal mining in Europe 1970-1990
- 1989: Sub-regional energy integration and third countries
- 1989: World energy horizons 2000-2020
- 1992: Energy reforms in central and Eastern Europe – the present situation

VII. SOME OF THE PEOPLE THAT MADE THINGS HAPPEN

Directors





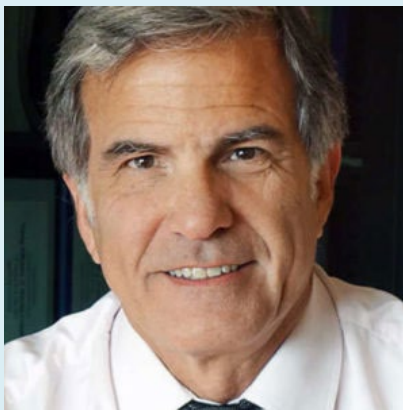
Pierre Sevette 1966



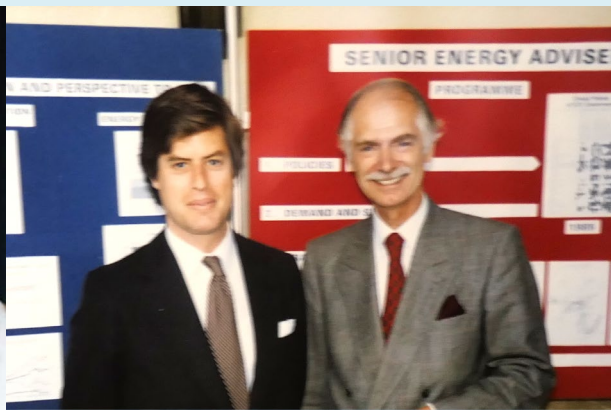
George Kowalski 1995



Edmond Janssens 1986



Scott Foster 2011



Fred Romig and Klaus Brendow 1988

Staff



above: Slavov, Stefanopoulos, Romig, Ms. Borota, Vilogorac, Mrs. Veloso, Gréaume, Brendow, Nadezhdin; center: Mrs. Sheppard, Cohen, D'Andrea; below: Le Marchand, Mrs. Andorfer, Mrs. Kiciman, Mrs. Healy, Christmas 1993

Chairs

Influential Committee Chairmen during the „Cold War” (for a full list of officers, see The Work of the ECE 1947-1972 (E/ECE/831))

Coal:

B. Krupinski (PL)
R. Duflou (B)



B. Krupinski (PL)



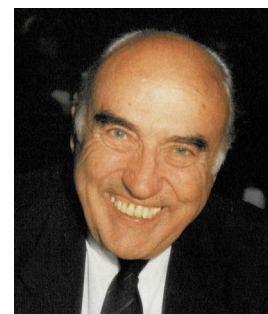
R. Duflou (B)

Electric Power

G. Vajda (H)
S. Lalander (SE)

Gas

J. Le Guellec (F)
Fritz Gläser (FRG)
(for a monography, see, Fritz Gläser:
Ein Leben für die Energiewirtschaft, Bonn, 1992)



Fritz Gläser (FRG)

Delegates

1970: the ECE Coal Committee celebrates in style the 25th anniversary of the ILO Coal Mines Committee



Experts



Colliery Shamrock, Herne (FRG) 1968 (circled: the author)

Revelers

Symposium on « The Gas economy and the Environment », Stuttgart (FRG), 1986



Deputy L. D'Andrea and Madame



Director K. Brendow and Madame

VIII. A MEMORABLE FAILURE: THE STUDY ON THE PRICE OF OIL IN WESTERN EUROPE, 1955¹⁸

A. The Study

“...The ECE secretariat took the initiative in the mid-1950s of studying the price of oil in Western Europe because of concerns expressed in the Coal Committee about the competition from oil products. This immediately touched the sensitivity of oil interests: Representatives of oil interests prior to publication expressed their concern over the analysis they feared would make a problem full of delicacy for them. When the study was published and turned out to be a sober presentation of important facts, hardly in dispute but hitherto difficult to document, the excitement abated and the way was open for a more dispassionate consideration of the problem.

Indeed, this study described how the FOB (free on board) price of oil from the Middle East was aligned on the FOB price of Texas Gulf and concluded: the wide divorce which persists between prices and production costs in the Middle East suggests that, if this link were severed, the price charged on sales to European countries by the Middle East could be significantly lowered without adverse effects on the further development of its crude oil production. But it went on to say: the present division of margin of price over cost between royalties and profits is both arbitrary and likely to change. The study regretted the lack of attention given to the problems this situation created and suggested an approach that would explicitly recognize the interests of all Governments, consuming as well as producing.

The Coal Committee invited the secretariat to publish promptly the study in Geneva and New York on its own responsibility. This was done. But when delegates more politicized than the experts attending the Coal Committee saw the study they insisted upon its withdrawal. The story, as reported by two different witnesses, was that the United States, the United Kingdom and the Netherlands made strong representations to Dag Hammarskjöld who ordered Gunnar Myrdal to withdraw the study. The study was not officially distributed, but the copies already printed were left in a place from where they were easily available to anyone interested: they disappeared within a few days.

B. The Consequences

By the end of the 1960s, it was evident that energy problems needed to be addressed in an integrated manner ... This prompted the Executive Secretary, Janez Stanovnik, to argue that the energy problem had become an issue of considerable urgency requiring special efforts at region-wide cooperation...

But this attempt to give the ECE a central role in energy policy failed because of the opposition of ECE governments and of the New York secretariat...who considered that global energy problems were the responsibility of the secretariat in New York not the Regional Commissions. But this also failed to materialize as the major oil companies and, therefore, their governments would never accept that oil be addressed in the United Nations. Instead, Western governments created the International Energy Agency within OECD in November 1974 and the ECE continued to address more technical issues such as energy efficiency and saving...”

¹⁸ ECE Secretariat: Looking back and peering forward, New York and Geneva 2007 (ECE/INF/2007/4), p. 68-70; excerpts and underlining by K. Brendow

IX. A MEMORABLE ACHIEVEMENT: A FIRST SYSTEMS ANALYSIS OF ENERGY EFFICIENCY IN THE ECE REGION, 1976

A. Four messages

The following were the messages of the publication "Increased Energy Economy and Efficiency in the ECE Region" (E/ECE/883.Rev.1¹⁹) of 1976:

- **Only 15 % of the energy tapped from pits, wells, forests, winds, rivers and waste in the early 1970s was actually "used", - 85 % was lost** during extraction, conversion, transportation and in end-use appliances (see Table).
- The study was first worldwide to calculate the efficiency or inefficiency of entire regional energy systems.
- It suggested perspectives for improvement: from 15 % in the early 1970s to 20 % in the near future and a **maximum of 30 % by the early 1990s**, provided technical progress was encouraged by government action, including through international cooperation.
- Despite the differences in social and economic systems, the (in)efficiencies did not differ notably between the market-oriented and the centrally planned economies,. The reason: the prevalence of globally practiced technical approaches. The implication: excellent prospects for international technical cooperation.

B. The structure of losses

- 59 % in extraction
- 13 % in upgrading and conversion
- 1 % in transport, distribution and storage
- 27 % in end-use
 - 9 % in Households
 - 6 % in "other industries"
 - 5 % in the iron and steel industry
 - 3 % in the chemical industry
 - 0.7 % in agriculture
 - 0.4 % in the aluminium industry
 - 2.9 % other

C. Why so?

The main loss of systems efficiency (65 %) was induced by geological, i. e. natural conditions; this is exemplified by the low recovery factors of coal, gas and oil extraction. In coal mining, losses were 80-90 % in opencast mines, 60-80 % in underground mines with long-wall faces and 65-70 % with room-and-pillar mining. The recovery factor from dry natural gas wells was about 60-80 %. Onshore oil extraction left about 65 % and offshore extraction about 60 % of the oil in the ground. The hydropower potential was exploited to only 25 %, but uranium resources to 95 %. Thus, 70-80 % of the energy stored in geological resources would remain "lost" for final use.

Second in importance were losses induced by technology (electrolysis, internal combustion engines, blast furnace operations, steam boiler/turbine/generator-based power generation). These losses are estimated to account for approximately 20 % of the total losses.

Third in importance were losses due to bad insulation, bad load shaping and wastage, i. e. losses which were not imposed by nature or technology, but which were "human-induced". They account for about 15 % of the total losses.

¹⁹ The publication has been digitalized and can be obtained from the UN Library.

Albeit the largest losses are due to geology, improvements would more likely to materialize with regard to human-induced than to naturally-induced losses.

D. Suggested remedial measures

The publication advocated measures to boost efficiency (see Table):

- better insulation, leak prevention and control
- increased heating efficiency
- recycling of low-grade heat and gases, energy-intensive scrap and materials, agricultural waste and municipal trash
- improved energy-saving end-use appliances
- "Total energy systems" including (local and international) interconnection of energy supply systems, district heating, integration of power plans and major customers like steelworks
- demand polices (adjustment of loads to real needs, shifts in transport modes and fuel patterns, more urban planning, energy-conscious design of buildings)
- new technologies (continuous casting, new electro-chemical aluminium processes, heat pumps, solar collectors, magneto-hydro-dynamics)

The various stages of the flow of energy	Levels of efficiency obtained in the early 1970s			Levels of efficiency which might be attained in the early 1990s			Change in %	
	Level, %	Main causes of low efficiency	Presently possible level, %	Maximum level, %	Main sources for improvement (a) Measures fully implemented by 1970s (b) Measures not fully implemented by the early 1990s	From	To	
I. Extraction	46	primary extraction techniques for oil; room-and-pillar mining of coal	59	71	(a) shift towards secondary and tertiary oil extraction; long-wall face mining of coal; reassessment of hydropower potential; (b) tertiary methods of oil extraction	+28	+54	
2. Upgrading and conversion	78	classical power generation	70 ^c	76 ^c	(a) concentration of electric power generation; combined electricity/steam production; replacement of old equipment (b) new technologies such as MHD, fuel cells, gas turbines, advanced HTR, breeders, fusion reactors	-10 ^c	-3 ^c	
3. Transport, distribution, storage	98	electric power transmission losses, losses in transformers, compressors, underground gas storage	96 ^c	98	(a) higher voltage, better insulation (b) increased use of direct current in long-distance transmission; cryogenic and supra-conducting cables	-2 ^c	+10	
4. Utilization	20-25	gasoline-powered internal combustion engine; modal transport pattern; suburbanization	25	30	(a) smaller cars; shift of traffic from road and air to rail; dieselization; better traffic flow (b) new transportation and propulsion techniques; urban planning; substitution of transport by telecommunications, nearby recreation, etc.	+20	+30	
(b) industry sector	55	waste heat and waste gases	65	65	(a) recovery of waste gases and low-grade heat; upscaling of plant size; partial integration of steel works with nuclear power stations (b) continuous casting	-20	+20	
ii. chemicals	50-70	leaks	55-75	60-80	(a) leak prevention, insulation, recycling, new technologies, plant integration into steam supply systems, concentration of operations in greater units (b) increased scrap and waste heat recycling	-10	+20	
iii. aluminium	30	losses of electrodes	35	35-40	(a) new electro-chemical and chemical processes (b) assessment of real needs; insulation; better equipment; better maintenance; recovery of waste heat; shifts in energy mix; total energy schemes	-15	+25	
iv. other industries	40-45	low price elasticity	45-50	55-60	(a) improved production structure, capacity use and integration; dieselization; recycling of waste; total energy systems (b) recycling of agricultural waste, changed demand structure	-10	+20	
i-iv. weighted average	45-50	gasoline and diesel powered internal combustion engine	56	60	(a) insulation of appliances and buildings; total energy systems; recycling of waste and trash; district heating, reduced consumption levels; redesigned energy mix (b) heat pumps; solar collectors; energy-conscious design of buildings	+10	+30	
(c) agricultural sector	30		33	36		+18	+25	
(d) households and other consumers sector	45	inefficient appliances, heat dissipation	50-55	60-65				
(e)-(d) weighted average	42		51	55		-15	+40	
5. Energy sector as a whole	15		20	30		+20	+100	

^a Useful output as percentage of input or availability.
^b Taking into account the present high level of energy prices (transmilled by oil price at about \$11 a barrel), geological, environmental, behavioural, technical constraints, and lead and conversion times.

E. Their potential

Not all these measures were expected to be put in practice by the early 1990s. Geological conditions may worsen unexpectedly. Some measures would require capital expenditure in competition with other goals (for example protection of the environment). Hopes on new technologies may be disappointed.

Thus, the study estimated that the level of efficiency practically obtainable in the early 1990s, at energy prices not too different from the prevailing ones, would lie substantially below the maximum possible, i. e. at 20 % rather than 30%. This would still be an increase of 33 per cent over the 15 % of the mid-1970s, reducing capital requirements and pollution significantly.

F. Government measures

In a climate of political tension, the study did not address the impact of pricing and price distortions, market failures or limits of five-year planning on energy efficiency, but merely described government measures in the mid-1970s in Austria, Belgium, Bulgaria, Czechoslovakia, Finland, France, German Democratic Republic, Federal Republic of Germany, Greece, Hungary, Italy, Netherlands, Norway, Poland, Romania, Spain, Sweden, Turkey, United Kingdom, United States of America, USSR and Yugoslavia; Cyprus, Canada, Ireland and Switzerland reported on particular issues. Some measures were not new, but extended those taken in 1950s (Hungary) and 1960s (Poland, Romania).

They were

- institutional (creation of inspectorates, agencies, specialized departments, interministerial committees),
- comprehensive (integrated approach to energy saving, national energy programs, five-year plans),
- financial (higher energy prices and customs duties, investments, tariffication by incentives, tax credits, subsidies), collaborative (information campaigns, labels, cooperation with local authorities and consumer associations, international joint ventures) and
- specific:
 - heating of buildings
 - recovery of waste heat and energy-intensive materials
 - combined heat and power production
 - district heating
 - rational use of gas
 - thermal standards
 - electrification and dieselization of railroads
 - recovery of coal, oil and gas
 - integration of oil, gas and electricity networks
 - scientific and technical research
 - econometric studies on the impact of savings on energy consumption and the economy
 - limits on speed and travel distance
 - more efficient mass transport
 - energy storage

Some measures were compulsory associated with penalties (reduced speed, travel distances, indoor temperatures, imports, public lighting, TV hours, opening hours of cinemas and theatres), most were regulatory or proactive. While Sweden, Switzerland and the US have prepared emergency stand-by systems, rationing was reported only from France, Spain and Turkey.

G. Follow-up in ECE

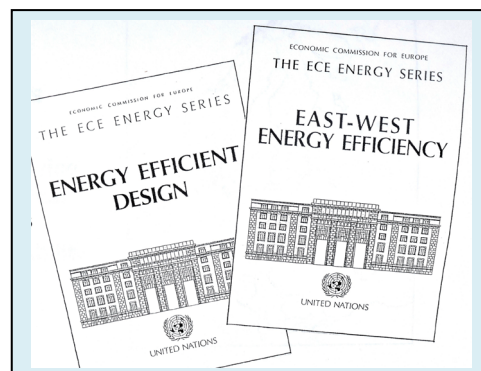
In the aftermath of the study, the Senior Advisers on Energy, at their first session in 1979, launched a program on energy efficiency and, inter alia, approved

a. studies:

1980: The Economic Commission for Europe and energy conservation
1984: Efficient use of energy sources in meeting heat demand
1984: Efficient use of energy in industry, in: ECE Economic Bulletin for Europe
1985: Waste energy recovery in industry
1988: Energy efficiency in European Industry
1990: Rational use of electric power
1991: Energy efficient design of building

b. symposia:

1980: Improved techniques for the extraction of primary forms of energy
1982: Comparative merits of energy sources in meeting end-use heat demand
1983: Rational utilization of secondary forms of energy in the economy, particularly in industry
1983: ad hoc meeting on Energy conservation
1987: Long term impact of energy efficiency improvements
1988: Optimum use of primary energy resources in final heat consumption



c. operational projects on energy efficiency

“Energy Efficiency 2000” was operational from 1990 to 2000. After only two years of operation, this sponsored project (4.6 million \$) reported in 1993 contributions to 25 trade fairs and workshops with 2400 participants, publication of a “Who is Who in Energy Efficiency”, two studies and creation of thirteen demonstration zones. It provided analyses, policy recommendations on standard setting, technical assistance and pre-feasibility issues.

As of 2000, “Energy Efficiency 21” continued in the same vain: enhancing regional cooperation on energy efficiency markets and investments to reduce greenhouse gas emissions in economies in transition. Since 2000, investment projects in Belarus, Bulgaria, Kazakhstan, Russian Federation and Ukraine were financed with some 15 million \$ with a total estimated CO₂ saving of 136,000 t per year. In 2004, EE21 received the award “Climate is Business”.

As of 2008, its inter-regional extension “Global EE21” addressed mitigation of climate change

H. Sustainability

The present programme of the Committee on Sustainable Energy addresses sustained improvements in energy efficiency in production and use, particularly in countries with economies in transition, via one of its subsidiary bodies – the Group of Experts on Energy Efficiency (GEEE). It issued the following publications:

2002: East West energy efficiency standards and labels

2003: Energy efficiency policies and measures in Europe

2009: Financing energy efficiency investments for climate change mitigation, project investor interest and capacity building needs

2011: Increasing energy efficiency to secure energy supplies in the CIS region

2015: Best policy practices for promoting energy efficiency

2015: Energy efficiency – Getting more from less (booklet)
2003: Experience of international organizations in promoting energy efficiency; country case studies on Ukraine, Russian Federation, Kazakhstan, Belarus, Bulgaria

2017: Best policy practices for promoting energy efficiency

2017: Overcoming barriers to investing in energy efficiency

2019: Progress in the areas of energy efficiency and renewable energy in selected countries of the UNECE Region

2020: Guidelines and best practices for micro-, small and medium enterprises in delivering energy-efficient products and in providing renewable energy equipment

2020: Promoting energy efficiency standards and technologies to enhance energy efficiency in buildings

X. OUTLOOK

A. Achievements so far

This record reflects the great importance, ECE Governments attached already in 1976 to energy efficiency. The study of 1976 – a world-wide first - described the (physical) efficiency or rather inefficiency of resource extraction-to-use in the ECE region: (only) 15 % of the energy contained in wells, pits, forests, waste and rivers exploited in the early 1970s was finally used. Efficiency gains were projected to raise the systems performance to 20-30 % in the early 1990s. Thereafter, during 1990-2020, another third (measured this time in toe/GDP²⁰) was actually achieved, that is by 1.5 %/a.

Of course, there were and are regional differences in the ECE area. Due to their industrial pattern, central and east European economies used four times more energy to produce wealth than western economies²¹, but the rate of improvement was also three times faster: 4.8 %/a as compared with 1.5 %/a. This observation should encourage inquiry and cooperation.

B. Present challenges

First: unfortunately, digitalization, the use of electronic devices, storage of data and mining of cryptocurrencies (“e-waste”) require ever growing energy and “consume” efficiency gains made so far.

Secondly: the comparative low level of efficiency in central and eastern Europe

Third: the rate of efficiency improvements in western Europe and North America had slowed down recently and remained significantly below the efficiency target of the UN Sustainable Development Goal of 3 %/a, required to achieve a 2°C scenario.

Fourth: there are problems of public acceptance, competing priorities for capital such as mitigating climate change, and market failures (no internalization of external costs of energy supplies). Seen the complexity of the latter issue, the Senior Advisers so far have been reluctant to address the issue. This stance might need to be reconsidered, as internalization adds a powerful arm to sustainable energy development.

1. The rate of improving efficiency in western Europe and North America during 1990-2020 remained significantly below the efficiency target of the UN Sustainable Development Goal of 3 %/a, required to achieve a 2° C scenario.

2. Internalization of external cost adds a powerful arm to sustainable energy development.

C. The next agenda: a change of paradigm

Seen the appeal of collaboration on the one hand and the alarming discrepancy between sustainable and achievable goals on the other, the Committee on Sustainable Energy will, no doubt, wish to continue to play a proactive role, hopefully supported by budgetary and extra-budgetary sources and public-private partnership:

- at the micro-level, the issue is technical and regulatory: to render new energy-voracious products and services more efficient;
- at the strategic level, the issue is behavioral: to explore and encourage user response to a change of paradigm in favor of a CO₂-neutral ECE energy economy. Indeed, it becomes ever more pressing to replace gentle incentives by more stringent and compulsory enhancements (norms, standards), to render supply and use patterns sustainable and to charge the real societal costs (via internalization of externalities, emissions trading, carbon taxes);

²⁰ IEA Energy Efficiency Indicators: Overview, Paris 2020; tons of oil equivalent/G DP at 2015 US \$ purchasing power parity

²¹ IEA Key World Energy Statistics, 2007 and 2020, p. 49 and 61 respectively, 2018: TPES/GDP OECD 0.11; CE 0.47

- in a longer-term perspective, the agenda is driven by global constraints like climate change, regionalization (“global decoupling”), population (growth and migration) and replacement of fossil-fuel based systems by alternative (ethic-driven) systems. The issue is to promote sustainability, structural change and interregional cooperation;
- however, weather hazards, cyberattacks and protectionism are likely to cause an unfamiliar volatility and vulnerability when established international energy systems are changed. Thus, the issue is to secure sustainability AND resilience to supply disruptions, black-outs and trade restrictions. The means? The Committee could reactivate its mandate of 1947²² to allocate scarce coal supplies (“bearing in mind the other sources of energy”) without requiring the prior or subsequent consent of the Commission. A precious (procedural) asset in times of urgency.

Much had been done.

More is going to be done.

Most needs to be anticipated.

²² box, section 3 on page 7 and G. Biryukow, Deputy Executive Secretary of ECE, at the 40th Jubilee session of the Coal Committee on 28. 9. 1987 (ECE/113, para 7 and Energy Division Monthly, Oct. 1987):

“... the Commission had given the Coal Committee and its executive arms, the Allocations Sub-Committee, extraordinary powers. Its recommendations made with the agreement of all governments concerned, were directly communicated to the governments rather than to the Commission, and were considered final. Your Committee, Mr. Chairman, and the Working Party on Coal Trade and Coal Statistics, as the successor of the Allocations Sub-Committee, still have these powers...”

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