SECRETARY OF STATE FOR THE ENVIRONMENT

2 MARSHAM STREET
LONDON SW1P 3EB
01-276 3000

My ref:

Your ref :

Dominic Morris Esq
Private Secretary to
The Prime Minister
10 Downing Street
LONDON
SW1A 2AA

21 April 1989

Dear Dominic,

GLOBAL CLIMATE SEMINAR: 26 APRIL

I enclose with this letter background notes and points for discussion on:

A Scientific assessment of climate change and its impacts;

B Measures to mitigate the greenhouse effect;

C Responses in an international context.

The background notes are drawn from the series of departmental papers which Ministers have considered recently and the Prime Minister will be famliar with the material.

At D is a paper by Dr Fisk which provides the general scientific background to Government.

I am copying this letter and enclosures to the Private Secretaries to the Chancellor of the Exchequer and the Secretaries of State for Foreign and Commonwealth Affairs, for [redacted] Energy, Trade and Industry and Transport, the Paymaster General, the Ministers for Agriculture, Fisheries and Food, Overseas Development, to Andrew Lean and to John Fairclough and Trevor Woolley (Cabinet Office) and Paul Grice here.

Yours

CEJ Bush

KATE BUSH
Private Secretary

ccPU
cc Sue Goodchild (Chart of guests only)

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Dear Dominic

GLOBAL CLIMATE SEMINAR: 26 APRIL

Thank you for your letter of 12 April requesting briefing for next week's seminar.

I enclose, as your letter requested, points for opening and closing remarks and a steering brief for handling the agenda including possible conclusions/summing up points for each section of the day.

Yours

Kate

KATE BUSH
Private Secretary

75 Watt lamp

¼ power ≅ 20 WATTS SAVINGS. 55 WATTS.

Used say 2000 hours per year

Saved energy 55 × 2000 = 110 KWh per annum.

Life of typical lamp ~ 6 MONTHS.
13 times life ≅ 6½ YEARS

TOTAL ENERGY SAVINGS ≅ 700 KWh

It takes 475 tonnes of coal } to produce 1 GWh (e)
260 tonnes of oil } in a modern power station.

Thus lamp saves $\frac{700 \times 10^3}{1 \times 10^9}$ × 475 tonnes coal ≅ 0·33 tonnes Coal

ditto × 260 tonnes oil ≅ 0·182 tonne Oil

0·33 tonnes coal emits approx 0·8 tonne CO_2

0·182 tonne oil is equivalent to approx 230 litres oil

ERGO Statements are correct !!

ACCEPTANCE SPEECH

of Amory B. Lovins

ONASSIS PRIZE FOR MAN AND ENVIRONMENT

DELPHI 1989

Prime Minister 4.

I ignore the rhetoric, but the figures, which I have had checked, for energy saving lighting are surprising

April 20, 1989.

Prime Minister, Mr. Chairman, eminent members of the International Committee, honoured guests, ladies and gentlemen:

This distinguished award does great honour not only to me but also to the person who did the other half of the work it recognizes: my wife and colleague Hunter, founder and President of Rocky Mountain Institute, whose decade of equal partnership co-created the work acknowledged here. I accept the Prize gratefully on behalf of us both.

The choice of energy as the theme of this first DELPHI Prize also honours and heartens not only our colleagues at and beyond our Institute, but all people around the world who labour to develop, proclaim, and practice the good news (ευαγγέλιον) about energy.

As Delphi is the navel of the ancient world, so energy is in a sense the navel of modern society: oil has become almost our blood, electricity the driver of our nerves and muscles. Yet the past 16 years have taught us that people's need for energy is not fate but choice. Rather than seeking to prophesy about energy, as an oracle might do, one should explore how widely and wisely we may choose our energy future.

A new kind of light-bulb illustrates this idea.

"When the earth was without form and void, and darkness moved upon the face of the waters," the first creative act was: "Let there be light!" Artificial light has uplifted people by letting them read and write after dusk, spreading the fruits of written culture from scholars to everybody. Light illuminates in more ways than meet the eye. But most lamps are still incandescent - and waste 95% of the electricity they use.

Now we can "see to it that the light is good" by substituting compact-fluorescent lamps, which use only a quarter as much electricity to produce the same amount of excellent light for at least 13 times as long. The new lamps' extra cost is usually more than repaid by avoiding a dozen replacement lamps and trips up a ladder to install them, so the electrical savings are better than free.

In my own country, such a lamp costs $7-11 at wholesale, much less to make. Over its life, it saves about $40-60 worth of utility fuel, lamps, and labour. Thus it creates many tens of dollars' net wealth - and it frees up for more productive uses hundreds of dollars' investment in electric supply. But the lamp can do much, much more.

If the saved electricity comes from a coal-fired power station, this one lamp over its life will prevent the emission of a tonne of carbon dioxide, which threatens to

change the earth's climate; at least eight kilogrammes of sulphur oxides, contributing to acid rain that kills fish and trees and to air pollution that harms people and buildings; and also nitrogen oxides, heavy metals, and other pollutants.

If the saved electricity comes instead from a nuclear power station, this one lamp over its life will avoid creating half a curie of strontium-90 and caesium-137, plus other long-lived radioactive wastes, plus about 25 milligrammes of plutonium - equivalent in explosive power to 385 kilogrammes of TNT, and also radiotoxic enough, if evenly distributed into human lungs, to cause at least 2,000 cancers.

If the saved electricity is made from oil, one such lamp can save 200 litres: enough to propel a superefficient car[2] for nearly 11,000 km - five times from Athens to London - or to carry you or your grandchild from Athens to Stockholm in an efficient jet[3].

Giving away such lamps in a poor country like Haiti could increase the disposable income of an average household by perhaps as much as one-fifth. The reduced electrical demand could cut India's peak load by more than one-fourth, make electric service far more reliable, and boost national development. In fact, since one-fourth of global development capital goes to electrification, and most Third World debt is energy-related, energy (especially electrical) efficiency is a prerequisite to sustainable development.

By displacing costly new hydroelectric dams, efficient lamps can prevent the flooding of Brazilian rainforests, Chinese farmlands, and Native Canadians's hunting-grounds. Such lamps, plus similar electrical savings in other uses, can also bring solar electricity within economically feasible reach for more than one milliard people in remote villages.

In effect, we are paid tens of dollars per lamp to accept these benefits. That saved money can enrich electric utilities as well as customers. One American utility[4] has given away half-a-million such lamps to its customers, because that's cheaper than operating its existing power plants. The utility's revenues fell, but its costs fell even more.

Energy efficiency saves tax-free money that largely recirculates in the local economy, supporting local jobs and multipliers. That's among the most powerful known engines of economic development.
Simple household energy savings encouraged by a small U.S. utility[5], for example, saved so much money that the utility prepaid all its debts, built up a big surplus, cut its tariff by one-third, thereby attracted two factories to town, and kept in town more than $1,000 per household per year - money that had previously left

the rural area to buy utility inputs - thus creating an island of relative prosperity.

Just in my own country, efficient new lighting equipment, fully used in existing buildings, can save at least a fifth of all electricity used nationwide, cut short-term net costs by $30 milliard per year, and displace 120 huge[6] power stations costing $200+ milliard. Adding the most efficient motors, appliances, windows, etc. now on the market brings the total potential saving to three-fourths of all U.S. electricity now used - at a cost far below that of just operating an existing coal or nuclear power plant, even if building it cost nothing. Similarly, saving three-fourths of today's oil costs less than finding new domestic oil or importing oil. And proven ways are available to finance and deliver these new technologies quickly and reliably to those who need them.

The energy efficiency revolution, finally, is the key to making the coming solar age practical and affordable. In solar energy, as in so much else, Classical Greek culture was among the first to come out of the shadows and see the light. The very flame in Delphi's Temple of the Vestal Virgins was kindled by concentrated sunlight[7]. Socrates's advice[8] to make our homes warm and sunny in winter but cool and shaded in summer was brought to a high art in such sophisticated passive-solar cities as Olynthus, Priene, and Delos[9]. Aeschylus[10] rightly called such environmentally conscious design "modern" and "civilized" - by contrast with the primitive houses built by barbarians who, disdaining the sun, "wrought all things in confusion. They lacked knowledge of houses ... turned to face the sun, dwelling beneath the ground like swarming ants in sunless caves."

Rediscovering our solar rootstock, and grafting modern efficiency technologies onto it, offers good news indeed - for all people, and for the earth. I thank you all for your collaboration in making this potential a reality in our daily lives, and for helping Greece once more to lead the world into the light.

END NOTES

(1) Extensive further documentation is available in the technical and popular publications of Rocky Mountain Institute, 1739 Snowmass Creek Road, Old Snowmass, Colorado 81654-9199, USA, telephone 303/927-3128 or 927-3851, night/weekend telefax 303/927-4178, telex 155203488 RMI:

(2) Assumed here to be the Renault Vesta II prototype, which was tested in 1987 at a composite (city/highway) performance of 1,94 l/100 km = 121 miles/U.S gallon.

(3) Assuming the ~19 passenger-km/l (~45 passenger-miles/U.S. gallon) typical of today's most efficient commercial jetliners, such as the 757, 767, advanced L-1011, and DC9-80. The next generation recently flight-tested saves a further ~40%.

(4) Southern California Edison Company, Rosemead, California. Some others are following suit.

(5) The Osage (Iowa) Municipal Utilities (population ~ 4,000); see Bill Paul, Wall St. J., p. 22, 8 December 1987. The saving was through household weatherization and took 8 9 years. Further savings are now underway.

(6) I.e., rated at 1 000 electric megawatts of net electric output.

(7) According to Plutarch, in The Lives of the Noble Grecians and Romans, translated by John Dryden and revised by A.H. Clough, Modern Library (New York), p. 82.

(8) E.g., as quoted by Xenophon, Memorabilia III, viii, 8f.

(9) See extensive description, illustrations, and references in K. Butti & J. Perlin, A Golden Thread: 2500 Years of Solar Architecture and Technology, Cheshire Books (Palo Alto, California) and Van Nostrand Reinhold (New York, Toronto, London, Melbourne), 1980, at pp. 5-13 & passim.

(10) Prometheus Bound, 447f.