Independent Activities Period, Jan 1973 OK

Draft Statement for Publication by

Carroll L. Wilson, December 30, 1972

SOME IMPLICATIONS OF ENERGY CHOICES

Rarely can the future effects of present national policy choices be seen so clearly as they can today in relation to energy. SCIENCE has become the leading forum for the debate on energy. The main scenarios can now be sketched.

Choice #1 might be called "full speed ahead," relying on oil imports to fill the gap - estimated at 10 million bbl./day or over 50% of domestic oil demand by 1980. Most of this imported oil would have to come from the Middle East in direct competition with Western Europe and Japan who must depend largely on these sources. The payments flow to these countries would rise from the present $8 billion/year to at least $32 billion/year (double the amount - double the price) with profound effects on the balance of payments and uncomfortable prospects as to the use some of the exporting countries may make of such untold wealth. Also, do we want to put those countries in a position so that acting together, as they now do, they could bring our economy to a halt by shutting off the flow of oil.

Choice #2 would place great reliance on nuclear energy. We would shift to electricity for much more of our residential and industrial demand and aim to put a severe limit on oil imports. A tiny band of knowledgeable critics is now challenging the gigantic atomic energy complex on the issue of nuclear reactor safety. The real debate is just opening. I expect the evidence is likely to show that a failure of the coolant system in water-cooled types of reactors is plausible, that such a failure would lead to melting of the intensely radioactive fuel core, that this molten mess would burn through the containers and foundations and "start for China" - except for 20% which is gaseous which would probably break into the atmosphere and drift downwind producing casualties by the thousand or million depending upon population densities in its path. One such disaster would generate demands for immediate shut down of similar plants. Several other aspects of Choice #2 are unattractive. Each 1000 MW(e) reactor produces 250 Kg of plutonium per year and 100 such reactors are forecast for 1985. Plutonium is one of the most poisonous substances known and the maximum life-time allowable body dose is set by the AEC at less than 10^{-6} gm. A leading AEC official has said we must expect unaccountable losses of plutonium

to be as high as 1%. Assuming a two-year fuel cycle this "loss" amounts to 125 Kg. of plutonium a year or 500 times the allowable body dose for the entire U.S. population. In addition there is the clandestine weapons problem. Annual plutonium loss would be enough to make about a couple of dozen Nagasaki type weapons if a mixture of Pu^{239} and Pu^{240} is useable for weapons as recently reported. Stealing this much or more out of the transportation system would not be difficult for a determined thief. Still another problem is the perpetual custody and care of radioactive wastes. Is this the kind of world we should bequeath to all future generations if we have safer choices?

The only safe course I see for present and future generations is Choice #3 which might be called energy conservation and development of new technology. A recent Government study defines many possible measures to reduce demand and waste without serious interference with lifestyles. Such conservation measures would reduce energy demand in 1980 by the equivalent of 7.3 million bbl./day. This is about one-fourth of the present energy useage. Such conservation would give us time to develop new technology and to assess whether heat from man's use of energy is likely to change the global climate. Today we

use in the United States about twice as much energy per capita as Great Britain, three times as much as France. In neither of these countries is life austere, nor would many people claim that the quality of life in the United States is 2-3 times better than in Britain or France. In new technology we should do several things. Firstly, we should develop and build environmentally acceptable plants to produce oil and gas from our vast coal reserves. Secondly, we should begin massive R & D on solar, geothermal and fus$ion energy systems to create an energy base for the 21st century. Thirdly, as an interim measure to reduce risks we should put all nuclear power plants at least 500 feet underground.

Choices #1 and #2 are unacceptable; Choice #3, energy conservation and new technology, is the only safe course. We should adopt a national goal of reducing energy use per capita by one half by 1985 instead of doubling it as we now seem headed towards doing. We probably could achieve this goal if we decided it was necessary, and as a result we would find ourselves and future Americans in a vastly safer and more comfortable position than by following Choices #1 or #2.

Seminar Notes C. L. Wilson 8 January 1973

Proposal - To use the energy crisis and the proposal of a goal of halving U.S. per capita energy use by 1985 as a test case for instruments and institutions to achieve such a goal.

- See statement on Implications of Energy Choices as text.

Steps - How to dramatize, develop consensus re dangers of Choices #1 and #2?

- Who has long-term strategic interest and motivation?
- Does it require citizen movements like Common Cause, Nader, Environmental to focus on long-term goals?
- How much is it essential to invoke fear - e.g. Arab oil shut-off, nuclear accident, plutonium world, etc.? What are forces pro/con - strength?
- May it be necessary to have a diasaster before public is aroused (as compared with private special interests)?

- Where to find allies? A national defense issue (Naval oil leases - committees of Congress, etc.)
- Analysis of measures in EEP report - different scales - time lags in introduction?
- Scenarios of different energy use levels - see Freeman Study Guide.
- Whose problem is it?
- Series of studies taking each issue

  Re #1 - projections re U.S. vs. Europe/Japan re Middle East (OECD report)

  - Consequences re price - shut-down when 15 X 10^{-6} bbl./day
  - Estimates of amounts of oil needed from each Middle Eastern or African (Nigeria) supplier
  - Effects of price rises due to U.S./E.J. competition on fuel costs to LDC's (claims for adjustments by LDC's)
  - Policies re cost pass on to consumers - accent or buffer?

Re #2 - Hearing by Joint Committee on Atomic Energy

- Where to get support for intervenors - past precedents
- Formidable AEC Complex
- How to reach the electric power companies (current alternatives in the Power Gas Combined Cycle - 4500 MW on order)
- Impact of accidents will fall on power company - only indirectly on maker (GE, West, Comb E)
- Public study of plutonium spread - consequences of rail accidents
- Comparison of different reactor types re hazard - HTGR vs. PWR/BWR vs. LMFBR - who to do
- Delays and cost escalation of nuclear plants - effects of reduced power levels on economics
- Disposal of h/a wastes - position and importance

Re Choice #3 - Conservation and Technology

- Major measures in OEP/ORNL Reprints
- Contrasts U.S./Europe
- OECD study re oil - differential action U.S. Europe - elements of a clash
- Technology options now - Power Gas Combined Cycle; later - Coal Gas of high and low ~~gas~~ BTU
- Gas supply position - models?
- Technology of conservation
  - Insulation
  - Reduced air cond.
  - Urban car (solves 2 problems)
- Systems of conservation
  - multiple use of private vehicles (OECD studies)
  - reduced needs for people movement
  - videophone, etc.
  - study of trade-offs of underground nuclear (or other) power plants tunnelling technology

Means and Institutions

- How to apply Daly's depletion coupons to energy crises - in U.S. and Europe?

  How it would work - e.g. reduced total of BTU coupons each year - let price float with Government take of differential over certain fuel prices - use take to push conservation measures and new technology

- Fuels may be first and easiest case to apply Daly depletion coupons - block out questions to probable - decision-making processes

- How else to achieve goal of use reduction? price ?

Possible Elements for Second Semester Program

Basic Framework

Daly - Transition to steady-state system

- Critique of growth fallacies and suggestion for National Materials Policy
- Book (if available) toward a steady-state economy

Boulding - Writings including marketable baby license coupons

Other - which?

Picardi - Goals and Policies for Sustainable Growth 22 October paper

Develop model/scenarios of Daly's three institutions--Distributist, marketable licenses to have children, and Depletion Quotas. Study steps by which such a society would reach consensus, establish institutions to achieve purposes, some critiques of new societiel forms (e.g. Willums "Segment-Centralized" system).

I shall write to Professor Daly enlisting his interest and assistance and try to arrange for him to meet with us once or more during semester. Professor Boulding may

MEMORANDUM

TO: Members of Seminar 15.965

FROM: Professor Carroll Wilson

DATE: December 27, 1972

RE: Schedule for Independent Activities Period

Monday, January 8, 1973

9:30 - 12:30	Meet in Room E52-365
12:30 - 1:30	Lunch at the Faculty Club
1:30 - 3:30	Meet in Room E52-365

Tuesday, January 9, 1973

2:30 - 5:30	Meet in Room E52-365
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Wednesday, January 10, 1973

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A supplement as to the scheduling of other guest participants will be mailed shortly.

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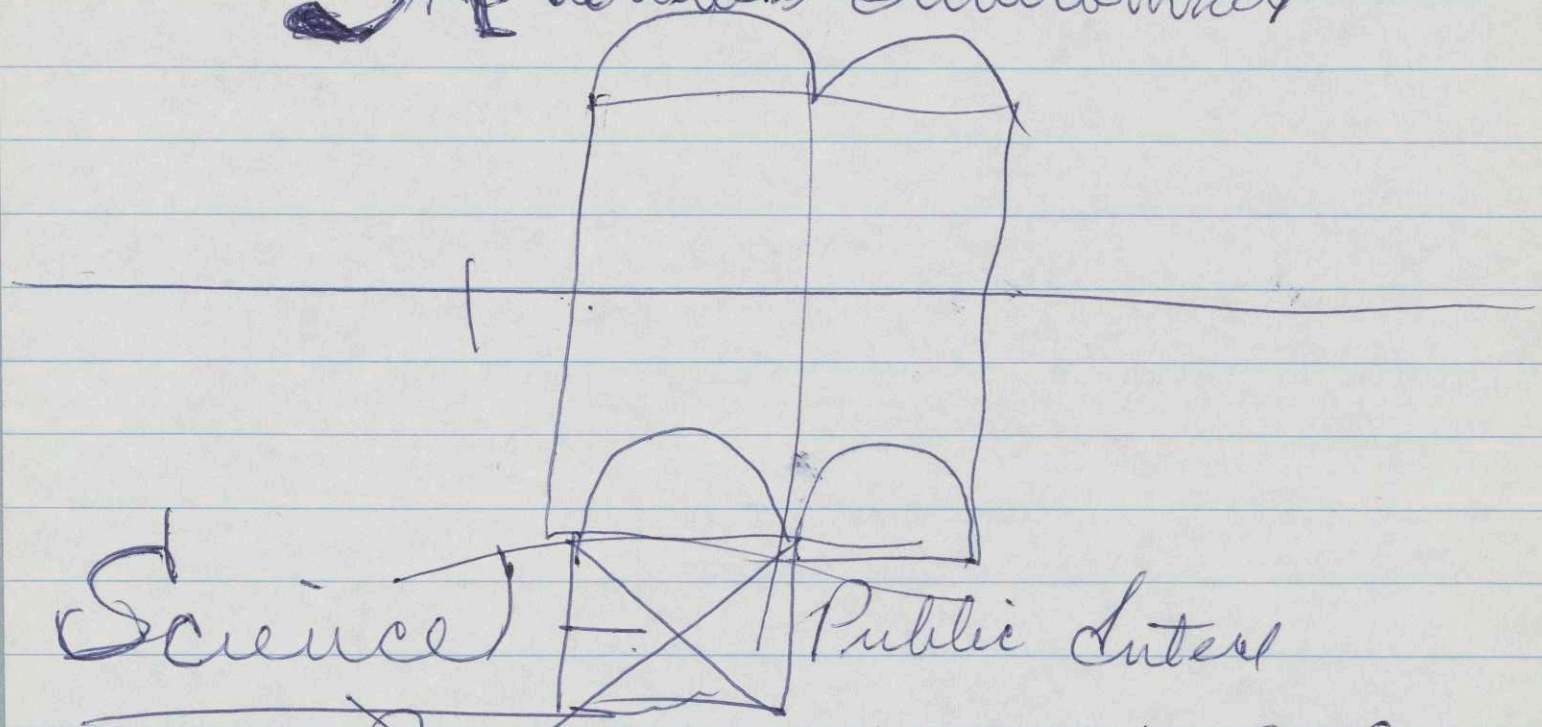
8 Jan (2)

Mack — Swedish figures

LNG — Exxon Impact Statement

Rollover —

Marcuse Environment



Science — Public Interest

Primack & Von Hippel

Energy

Book at Pmers. — Stanford Univ

Anthony Downs — Public Interest magazine

Sci American — Energy & Power

[D. Array] - Report (8 Jan

Paul Tillich - Love Power & Justice (1)

John Bennett - Summarizer
Christian Ethics
Christian Ethics & Social Policy
(& social Responsibility)

Richard & Reinhold Niebuhr

Geo Cabot Lodge - Engines of Change

Rogers - Communications of Innovation

Maddox - Doomesday Syndrome

Lodge Points - Levers of change in US Society

DOD Handrock sites

Wigner - Study of Up NAS / ARC (underground)

Lodge 10 Jan

(1)

Mannheim — Man & Ideology in an age of Reconstruct

Lodge — John Rodsell Rawls — a Theory of Justice — Locke

Values
Survival
Justice
Economy
etc

Ideology (old)

1. Individualism — Equality, Contract
2. Property
3. Competition
4. Limited State — response to pressure groups, crisis, No planning
5.* Secret Specialty

Japan, China

Atomism

Real World

Institutions
Govt - FPC
Business - Con Ed
Behaviour
J Wayne
H. Alger
Demography
Ecology
etc.

Pragmatism

Ideology - (New) — neo medieval

Self Repeal

1. Communitarianism
2. Right to survival - organic income / income, health
3. Public good / Community need (not common denominator or arbiter)
4. State - Planner Coord, Vision setter
5. Concern for the whole (Harmony of man & nature)

* The whole will take care of itself if you look closely at the parts
Brownie points
Philosophers should look at whole
RG

Lodge Jan 10

(X) (2)

General Motors

1908

1973

owners? 1.5×10^6 shareholders
25% institutions etc

SEC Delaw | Insulate Managers from owners

Shareholders don't want to be owners
– just owners – sell if dissatisfied

GM in deep shit as Trouble questionable legitimacy of mgt.

7th Cent – Economic activity broken out of whole

Late 20 Cent – must be cared part of the whole

Perhaps – Nader as an example.

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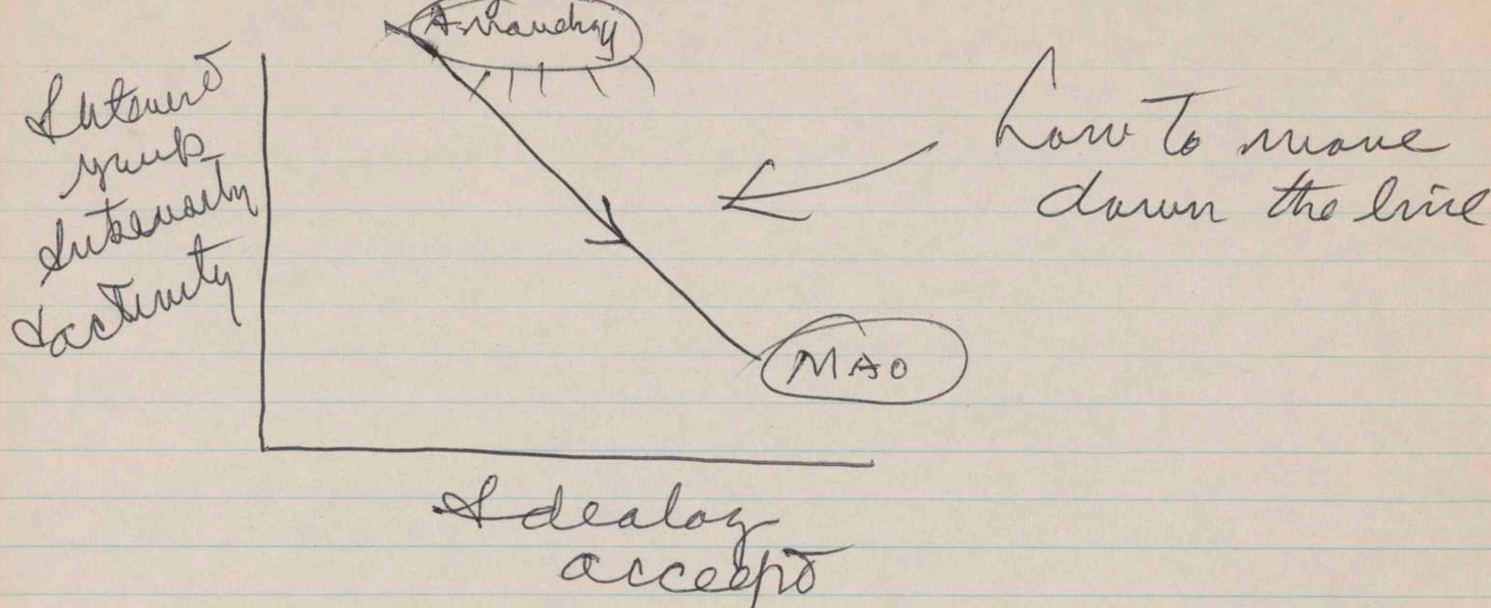
a new Political

Rawl – Without Marx & Jesus

Lodge - Jan 10

Change



Do we continue to stay open

- Do you let the Engines of change work — or suppress

Use crisis efficiently
Divisive

L to G
Pref al crisis

Intell Community

Primary tactic
Change per oz blood

Earl of Shaftsbury - Locke

mediocre element Oxford

Leader oppos vs Chas. II
became speechwriter

Newtonian Card

Lodge Jan 10 (4)

- Locke - awareness of real world

John Rawls - Theory of Justice

Mannheim - ~~Man~~ Ideal & Utopia

Growth Ideology came in between

Turn off the top of growth & you introduce another major element

US has had no experience with boundaries

Limits Define AO 24 hr day

< Define identity - quality / Limits

Lodge Sem 1

(5)

Growth

Study of Limits

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