

PTCOG 13

November 1-2, 1990
Lawrence Berkeley Laboratory, University of California
Berkeley, California

Agenda

November 1, Thursday, morning, Building 50 Auditorium

- 7:45 *Bus leaves Shattuck Hotel to LBL*
- 8:00 **Registration and coffee**
- 8:30 **Welcome**
“Centralized biomedical heavy-ion facilities for therapy, fundamental research and exploration of space,” Thomas F. Budinger, LBL
- New charged-particle initiatives and proposals: I**
Jose Alonso, LBL, Chair
- 8:50 *“Moscow Proton Therapy Facility Project,”* V. Khoroshkov, L. Goldin, K. Onosovski, and G. Klenov, ITEP, Moscow
- 9:20 *“Cancer strategy for the European Community,”* Fons Vermorken, Directorate for Science Research & Development, European Community
- 9:50 *“Plans for a Proton Medical Facility at Massachusetts General Hospital,”* Michael Goiten and Kenneth Gall, MGH
- 10:10 **Coffee Break**
- Loma Linda Proton Therapy Facility Commissioning**
- 10:30 *“Intensity characteristics and improvements in the Loma Linda Proton Accelerator”,* Phil Morton, SLAC/SAIC/LLUMC
- 10:50 *“Loma Linda Eye Treatment System commissioning tests and result.,”* Daniel Miller, George Coutrakon, Michael Moyers, and Jeff Siebers, LLUMC
- 11:10 *“Building a Proton Therapy Facility – Loma Linda Experience,”* James M. Slater, Loma Linda University Medical Center (LLUMC)
- 12:00 Open discussion on the Loma Linda Proton Therapy Facility commissioning
– Michael Goitein, MGH, Moderator
Discussants: George Coutrakon, Daniel Miller, and Jon Slater, LLUMC, Roy Little and Phillip Young, SAIC, and Phil Morton, SLAC/SAIC/LLUMC
- 1:00 **Lunch** (You are on your own at the LBL cafeteria or other local establishments.
Please plan to be back by 2:30)

November 1, Thursday afternoon, Building 50 Auditorium

- Imaging techniques in planning charged particle therapy**
Norbert Liebsch, MGH, Chair
- 2:30 *“Clinical need for image correlation,”* Norbert Liebsch, MGH
- 2:45 *“Image correlation techniques for therapy planning,”* Paula L. Petti, LBL
- 3:05 *“PET of hypoxia in treatment of gliomas,”* Peter E. Valk, Chester A. Mathis, Michael D. Prados, and Thomas F. Budinger, LBL
- 3:25 *“Acoustic pulse generation in water, muscle, and living rabbit by pulsed proton beam irradiation and its possibility of monitoring of dose distribution in the irradiated patients,”* Y. Hayakawa, J. Tada, K. Hosono, and T. Inada, University of Tsukuba, Tsukuba, Japan

Coffee break

- 4:00 **New approaches in proton medical accelerators** – Tim Renner, LBL, Chair
“Los Alamos thinking on LINAC design for proton therapy,” George P. Lawrence et al., Los Alamos National Laboratory
- 4:15 “Use of proton LINAC for neutron therapy and as injector to a proton synchrotron for proton therapy,” Arlene J. Lennox, Fermilab
- 4:30 “Comments regarding accelerator considerations for proton-therapy facilities,” Ronald L. Martin, ACCTEK Associates
- 4:45 “Progress on MSU medical accelerators projects,” Henry Blosser, MSU
- 5:00 **Slide show:** “Recent US/USSR Scientific Exchange visit,” John Lyman, LBL, Lynn Verhey, MGH, and Sandra Zink, NCI

or

- 5:00 **Bevalac Biomedical Facility Tour**
- 5:30 Bus leaves LBL to Shattuck Hotel and the Faculty Club
- 6:20 Bus leaves Shattuck Hotel to the Faculty Club

November 1, Thursday evening, The Great Hall, University Faculty Club

- 6:30 **Reception and Banquet**
Reception – courtesy of the Brobeck Division of Maxwell Laboratories
Flute Trio – Kyunghee Park., flute, Emily Qin, violin, and Si-Eun Lee, cello, will play music of Mozart, Haydn, Bach and Beethoven.
Banquet address: “No Regrets” Responses to the Greenhouse Threat,
Arthur H. Rosenfeld, Professor of Physics, UC, Berkeley
(For the abstract of the talk, please turn to page 6 of the agenda.)
- 9:30 Bus leaves the Faculty Club to Shattuck Hotel

November 2, Friday Morning, Building 50 Auditorium

- 7:00 *PTCOG Steering Committee meeting (LBL Cafeteria, lower level)*
- 7:45 Bus leaves Shattuck Hotel to LBL
- New heavy charge-particle initiatives and proposals II**
- William T. Chu, LBL, Chair
- 8:00 “HIMAC construction project,” Yasuo Hirao, National Institute of Radiological Sciences, Chiba Japan
- 8:35 “EULIMA feasibility study for European Community,” Pierre Mandrillon, A. D. EULIMA, Laboratoire du Cyclotron, Nice France
- 9:10 **Panel: “Current views on the scientific and medical rationale for high LET in therapy”,**
– Joseph R. Castro, UCSF and LBL, Moderator
Panelists: Stanley B. Curtis (LBL, Berkeley), Gerhard H. Kraft (GSI, Darmstadt), Lester J. Peters (MDAH, Houston), and Theodore L. Phillips (UCSF, San Francisco), Cornelius A. Tobias (LBL and Professor Emeritus, UC, Berkeley)
- 10:45 *Coffee break*

- 11:00 **Panel: “How to design heavy charged-particle clinical trials?”**
– Herman D. Suit, MGH, Moderator
Panelists: Mary M. Austin-Seymour (University of Washington, Seattle), Joseph R. Castro (UCSF and LBL, Berkeley), Norbert Liebsch (MGH, Boston), and James M. Slater (Loma Linda University Medical Center, Loma Linda)
- 12:20 “*Future status of biomedical research at the Bevatron,*” – Jose R. Alonso, LBL
- 12:35 **PTCOG Business meeting** – James M. Slater, Loma Linda, Chair
and
Working Lunch Luncheon will be served outside the Auditorium
– Courtesy of the Science Applications International Corporation (SAIC)
Please get a lunch and return to the Auditorium for the business meeting

November 2, Friday afternoon, Building 50, Auditorium

Particle therapy delivery: I – Lynn J. Verhey, MGH, Chair

- 2:30 “*Status of the GSI heavy ion therapy project,*” G. Kraft, K. Blasche, D. Bohne, B. Fischer, G. Gademann, H. Geissel, Th. Haberer, J. Klabunde, B. Langenbeck, G. Munzenberg, D. Schardt, H. Stelzer, and Th. Schwab, GSI, Darmstadt
- 2:50 “*Two is company: three is a crowd – Patient queuing in multi-treatment room operations,*” William Chu, Timothy Renner, and Bernhard Ludewigt, LBL
- 3:10 “*Effect of patient motion on dose uniformity using scanned proton beam,*” Mark Phillips, LBL, Eros Pedroni, Hans Blattmann, Adolf Coray, Terence Boehringer, and Stefan Scheib, Paul Scherrer Institute, Villigen
- 3:30 “*Intensity losses resulting from emittance and energy dispersion for an energy degraded proton beam,*” Yves Jongen, Ion Beam Applications, Louvain-la-Neuve, Belgium
- 3:45 *Coffee break*
- Particle therapy delivery: II** – Bernhard Ludewigt, LBL, Chair
- 4:00 “*A double-foil scattering technique for proton beam flattening,*” Anders Montelius, Goran Rikoer, and Kellie Russell, Avdelning f sjukhusfysik, Uppsala and Anders Brahme, Karolinska Institute, Stockholm
- 4:15 “*Multileaf collimator for heavy charged-particle beams,*” Bernhard Ludewigt, William Chu, Timothy Renner, John Bercovitz, Mark Nyman, LBL
- 4:30 “*Radiation shielding for 230 MeV protons,*” Jeff Siebers, LLUMC
- 4:45 “*Shielding modifications at HCL for simultaneous operation in two treatment rooms,*” Andreas Koehler, HCL
- 5:00 **Adjourn**
- 5:15 Bus leaves LBL to Shattuck Hotel

Banquet address: "No regrets" Responses to the Greenhouse Threat

Arthur H. Rosenfeld, Professor of Physics, UC, Berkeley

Abstract

Figure 1 shows the profitable US response to the 1973 threat if high oil prices. Annual energy savings are now \$150 B, annual net savings are \$100 B, and imports and prices were down until Iraq. Our cars, building and equipment are better and more competitive. To delay the triple threats of Global Climate Change, OPEC, and dwindling competitiveness, we must again improve our energy efficiency about 3%/year. We can do this for the next 20 years. I will address two areas:

1. Today's cars and buildings are "stuck" at investments in energy efficiency based on three-year payback. If we invested out to minimum life-cycle cost, energy bills would drop 1/3 to 1/2.
2. Without waiting for high prices to achieve these economies, we should introduce two motivations: (a) Redefine the profit rules for utilities, and (b) Introduce revenue-neutral "fee-bates" for new cars, buildings and appliances.

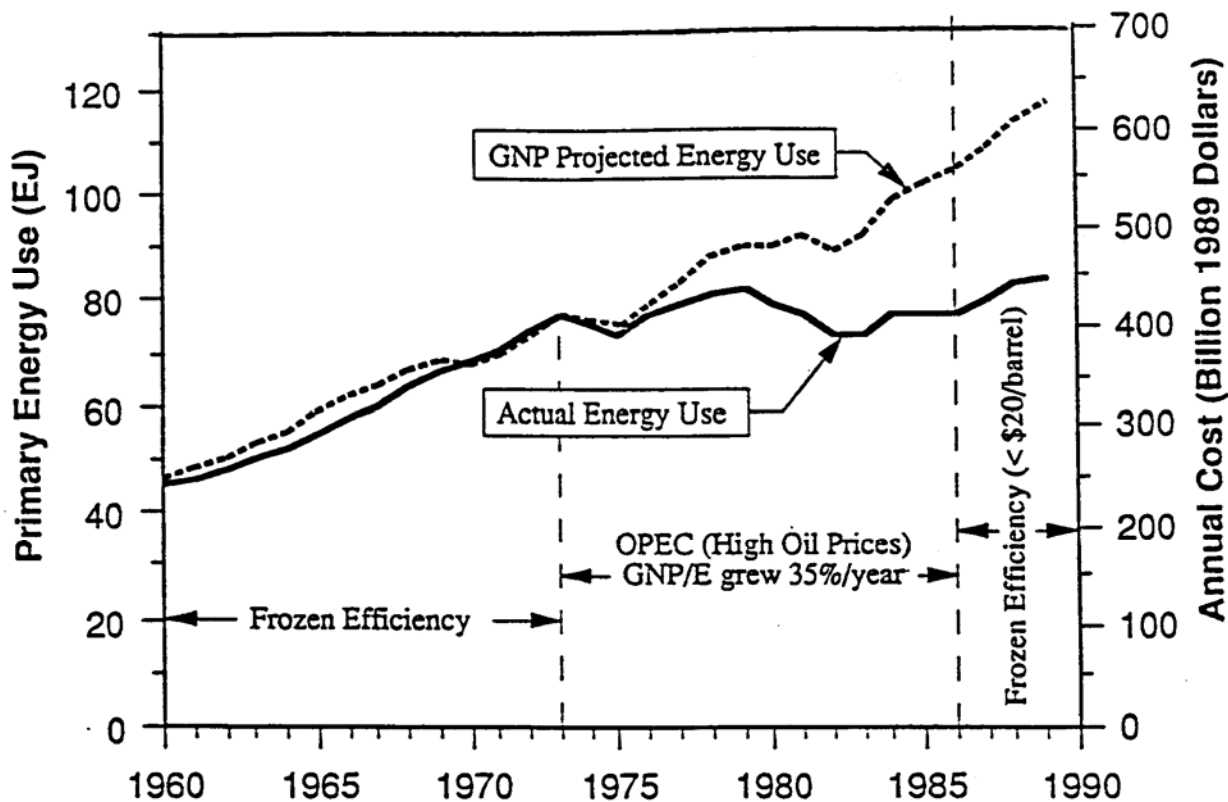


Figure 1. US Primary Energy Use and GNP (1960 – 1989). Before the first oil crisis, in 1973, energy use was in lockstep with GNP. During the 13-year period of high oil prices, from 1973 to 1986, improved energy efficiency and conservation allowed a 35% increase in GNP while total energy use stayed almost constant. By 1986, this translated into savings of \$150 billion per year with oil-plus gas savings amounting to 14 million barrels of oil per day or one-half the current capacity of OPEC. Shortly, after oil prices collapsed in late 1985, pre-OPEC frozen efficiency reappeared and now energy use is once again nearly in lock-step with GNP (within 0.7% per year).