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CHATTANOOGA AREA ENGINEERS' WEEK,
CHATTANOOGA CHOO CHOO RESTAURANT
7:00 P.M., MONDAY, FEBRUARY 18, 1974

I AM HONORED TO HAVE THE OPPORTUNITY
TO ADDRESS YOUR 1974 ENGINEERS' WEEK HERE IN
THIS VITAL ELECTRICAL AND ENERGY CENTER
KNOWN AS "THE DYNAMO OF DIXIE".

Don't (butterly)

Major Walker
Lamar Baker
David Baker / Bill Brock



Telephone call

Not one of Ford's "better ideas"
One of Betty's "better part downs"

THERE IS A GROWING AWARENESS THAT THE ENGINEER AND THE SKILLS THAT HE COMMANDS ARE AMONG OUR GREATEST RESOURCES. TODAY AS NEVER BEFORE THIS GREAT RESOURCE MUST BE USED WISELY AND WELL.

YOU ARE TO BE COMMENDED FOR CREATING THE ENGINEERING TASK FORCE ORGANIZED DURING THE LAST YEAR. BY DRAWING FROM THE SCIENTIFIC SKILLS OF THE 19 ENGINEERING SOCIETIES THAT COMPRISE YOUR UNDERTAKING, YOU ARE MOBILIZING OVER 1,500 ENGINEERS OF THIS AREA IN A CONSOLIDATED EFFORT TO SERVE OUR NATION. I SALUTE THE TENNESSEE VOLUNTEERS FOR THEIR GREAT REBEL INGENUITY.



TONIGHT I WANT TO ADDRESS MYSELF TO
THE ROLE OF THE ENGINEER IN THE ENERGY
CRISIS. IN TIMES OF GREAT NATIONAL NEED,
WE TURN TO THE ENGINEER.

IN THE FIFTIES OUR ENGINEERS FORGED
AHEAD WITH NEW WEAPONS FOR OUR DEFENSE.

*Pre-WW.II -
WW.II - "Manhattan Project"*



IN THE SIXTIES AMERICAN ENGINEERING
PUT AMERICANS ON THE MOON IN A SINGLE DECADE.

NOW IN THE SEVENTIES WE TURN TO THE
ENGINEER TO HELP SOLVE THE ENERGY CRISIS.



THE AMERICAN ENGINEER HAS THE TALENT
AND THE ABILITY TO SOLVE THE ENERGY PROBLEM.
WHAT WE LACK IS THE TIME REQUIRED TO BRING
OUR SKILLS INTO EFFECTIVE ACTION.
FORTUNATELY, IN THIS CRISIS AS IN SIMILAR
SITUATIONS IN THE PAST, INGENUITY CAN BE
A SUBSTITUTE FOR TIME.



AN EXAMPLE OF THIS CAN BE FOUND [REDACTED]
[REDACTED] IN NASHVILLE, WHERE ENGINEERS ARE
BUILDING A PLANT TO BURN SOLID WASTE MATERIAL
IN A MANNER THAT WILL GENERATE STEAM TO HEAT
AND COOL OFFICE BUILDINGS. THEY ARE
SIMULTANEOUSLY SERVING ECOLOGY AND CONSERVING
ENERGY BY TURNING TRASH INTO POWER. THIS
IS EXACTLY THE TYPE OF INGENUITY WE NEED.



TODAY, WE LOOK FOR THE ENGINEER WHO CAN UNDERSTAND, RECONCILE AND SYNCHRONIZE THE DEMANDS OF ENERGY AND ENVIRONMENTAL PROTECTION. WE NEED THE ENGINEERS WHO ARE ABLE TO BALANCE PRIORITIES, WHO CAN MERGE ENERGY DEMANDS WITH THE NEEDS OF ECOLOGY, SO THAT WE CAN HAVE BOTH A SUFFICIENT SUPPLY OF ENERGY AND A CLEAN WORLD IN WHICH TO LIVE.



IF WE ARE TO DEVELOP THE REQUIRED ENGINEERING RESOURCES TO MEET THESE GOALS, THE GOVERNMENT MUST RENDER ALL POSSIBLE ASSISTANCE TO INDUSTRY AND TO OUR EDUCATIONAL INSTITUTIONS.

I AM DELIGHTED TO BE ABLE TO REPORT THAT WE ARE ALREADY AT WORK IN THIS AREA.



EXPERTS AT THE NATIONAL SCIENCE
FOUNDATION ARE CONDUCTING A FAR-REACHING
MANPOWER STUDY TO ASSESS THE OVERALL AVAIL-
ABILITY AND NEEDS OF SCIENTIFIC PERSONNEL IN
MEETING THE ENERGY CRISIS.



IN ADDITION, THE NATIONAL SCIENCE
FOUNDATION IS SPONSORING GRADUATE TRAINING
IN ENERGY-RELATED RESEARCH IN THE COAL, OIL
SHALE, GEOTHERMAL, AND SOLAR AREAS. POST-
DOCTORAL PROGRAMS ARE PLANNED. DISTINGUISHED
SCIENTISTS AND ENGINEERS ARE TO BE INVITED
FROM ABROAD. FUNDS ARE BEING PROVIDED TO
TRAIN HIGHLY SKILLED TECHNICIANS. AND THE
TECHNICAL SUPPORT OF UNIVERSITIES AND
INDUSTRIES IS BEING COORDINATED AND EXPANDED.



RECENTLY THE FEDERAL ENERGY OFFICE IN WASHINGTON, D. C., UNCOVERED A MAJOR NEW AREA FOR THE APPLICATION OF AMERICAN ENGINEERING SKILLS AND TECHNIQUES.



IT HAS COME FORWARD WITH AN ANALYSIS WHICH SHOWS THAT THE AMERICAN POPULATION OF 210 MILLION WASTES AS MUCH ENERGY AS THE 110 MILLION PEOPLE IN JAPAN CONSUME. WITH NEW TECHNIQUES AND APPROPRIATE CONSERVATION MEASURES, THERE ARE INDICATIONS WE CAN SAVE BETWEEN 30 AND 40 PER CENT OF THE ENERGY WE NOW REQUIRE.

THESE STATISTICS POSE A GREAT
CHALLENGE TO THE ENGINEER.



THEY ASK YOU TO:

- FIND WAYS TO STOP THIS WASTE OF
ENERGY. *Commend voluntary conservation of gasoline
& fuel oil on the highway, in the home & factory.
SAVE GAS/SAVE \$\$\$.*
- INCREASE ENERGY PRODUCTION IN THE
SHORTEST TIME SPAN POSSIBLE.
- PRESERVE THE QUALITY OF OUR AIR AND
WATER. AND...
- REMAIN MINDFUL THAT COSTS MUST BE
HELD AS LOW AS POSSIBLE.

I AM CONFIDENT THAT THE AMERICAN
ENGINEER CAN MEET THESE SPECIFICATIONS.

THE OUTLOOK IS FAR FROM GLOOMY. IN
THE ENERGY FIELD, AMERICA IS VIRTUALLY AN
UNDERDEVELOPED NATION. THERE ARE MANY ENERGY
RESOURCES WAITING TO BE TAPPED.



*Dispute per
development &
progress*



--WE HAVE 1.8 TRILLION BARRELS OF
OIL WHICH CAN BE UNLOCKED FROM THE
SHALE FORMATIONS IN COLORADO,
WYOMING, AND UTAH, WITH THE PROPER
TECHNOLOGY. THIS IS MORE THAN THE
PROVEN RESERVES OF THE LARGEST ARAB
OIL PRODUCERS IN THE MIDDLE EAST.

--WE HAVE HALF THE FREE WORLD'S
PROVEN COAL RESERVES, ENOUGH TO
LAST FOR CENTURIES. IT AWAITS THE
TECHNOLOGIES FOR EFFECTIVE CONVERSION
TO CLEAN GAS AND LIQUID FORMS, AND
THE TECHNOLOGIES WHICH WILL PERMIT
US TO MINE THESE VAST RESERVES
WITHOUT DESPOILING THE LAND.



--FORTY PER CENT OF OUR POTENTIAL OIL AND NATURAL GAS RESERVE LIES UNTAPPED ON THE OUTER CONTINENTAL SHELF. NOT A SINGLE EXPLORATORY WELL HAS BEEN DRILLED ON THE ATLANTIC OUTER CONTINENTAL SHELF. THERE MUST BE STRONG ASSURANCES THAT THE OCEAN DRILLING CAN BE DONE WITHOUT THE RISK OF SERIOUS ENVIRONMENTAL DAMAGE.



--ONCE THE ALASKAN PIPELINE STARTS
FLOWING, ^{*significantly Congress delayed too long to conclude action*} WE CAN START DEVELOPING
THE HUGE RESOURCES IN OUR LARGEST
STATE. NO ONE REALLY KNOWS THE
EXTENT OF THOSE RESERVES.

--THERE ARE MILLIONS OF ACRES OF
PROVEN AND POTENTIAL GEOTHERMAL
AREAS IN THE WESTERN STATES.
TECHNOLOGY IS NEEDED TO MAKE THEM
ECONOMICALLY USEFUL.



--RESEARCH---MUCH RESEARCH---IS
NEEDED TO PERFECT THE USE OF SOLAR
ENERGY, PERHAPS OUR GREATEST UNTAPPED
ENERGY SOURCE.

THERE ARE MORE---BUT THOSE ARE SOME
OF THE CHALLENGES AMERICAN ENGINEERS HAVE TO
MEET AND CONQUER.



THERE IS STILL A GREATER--EVEN MORE
VITAL--CHALLENGE IN WHICH YOUR HELP IS OF THE
GREATEST IMPORTANCE.

I PREDICT THAT PROJECT INDEPENDENCE--
PRESIDENT NIXON'S PROGRAM FOR MAKING THE U.S.
SELF-SUFFICIENT IN ENERGY NEEDS--^{by 1980 or before} WILL BE
SUPPLEMENTED BY PROJECT INTER-DEPENDENCE.
THAT IS THE WORLDWIDE COOPERATION OF MANKIND
TO SOLVE THE DILEMMA OF CONSTANTLY GROWING
POPULATIONS AND ENERGY NEEDS, AGAINST A
FINITE SUPPLY OF MINERAL RESOURCES.



THIS GOAL OF WORLDWIDE COOPERATION IS BEING BROUGHT WITHIN REACH BY THIS ADMINISTRATION. PROJECT INTERDEPENDENCE CAN FLOURISH IN THE CLIMATE OF PEACE CREATED BY PRESIDENT NIXON'S WORLD POLICIES. IN FACT, THE GROUNDWORK IS BEING LAID.

The recently concluded Conference in Washington between oil consuming Nations, despite the forecasts of failure, was successful. It will lead to subsequent gatherings of both Consumers & Producers



ALREADY, THE EASING OF INTERNATIONAL TENSIONS HAS BEEN ACCOMPANIED BY SUBSTANTIVE EXCHANGES OF IDEAS AND EXPERTS CONCERNED WITH ADVANCED ENERGY TECHNOLOGIES. AMERICAN SCIENTISTS AND ENGINEERS GO TO THE SOVIET UNION.

RUSSIANS COME HERE. IN TENNESSEE YOU HAVE BEEN HOST TO SOVIET COLLEAGUES AT OAK RIDGE AND TULLAHOMA. THERE IS SPECIAL INTEREST IN THE WORK ON ADVANCED ENERGY CYCLES. WE ARE LEARNING FROM EACH OTHER.



AS YOU KNOW, THE OIL CONSUMING NATIONS
MET IN WASHINGTON LAST WEEK AT PRESIDENT
NIXON'S INVITATION. ENSUING FROM THAT ^{Consuming} ^{Nation}
^{in Washington} MEETING WILL BE A POOLING OF ENGINEERING
RESOURCES IN ENERGY SUPPLY AND CONSERVATION.
WE ARE FOSTERING A NEW SPIRIT IN THE WORLD--
A SPIRIT THAT WILL TRANSCEND TEMPORARY
DIFFERENCES.



DR. KISSINGER, OUR SECRETARY OF STATE, SUMMED IT UP RECENTLY WHEN HE SAID: "WE KNOW THAT THE ENERGY CRISIS INDICATES THE BIRTH PANGS OF GLOBAL INTERDEPENDENCE. OUR RESPONSE COULD WELL DETERMINE OUR CAPACITY TO DEAL WITH THE INTERNATIONAL AGENDA OF THE FUTURE."

YOUR WORK AS ENGINEERS WILL BE PART OF OUR RESPONSE.



THEREFORE, I WANT TO THANK THE ENGINEERS OF TENNESSEE FOR THE PROGRESS YOU HAVE ALREADY MADE IN THIS DIRECTION. YOU ARE HASTENING THE DAY WHEN MANKIND WILL SHARE ITS COLLECTIVE GENIUS TO BRING ABOUT AN ERA OF WORLDWIDE PEACE, WELL-BEING AND UNDERSTANDING. BUT THE WORK HAS ONLY JUST BEGUN.



WE MUST ALL TAKE PART. IT WILL
REQUIRE GREATER EFFORT, GREATER THOUGHT,
GREATER INGENUITY, GREATER CONCERN FROM
EACH ONE OF US.

THE CHALLENGE IS HUGE.

BUT THE GOAL IS THE DREAM OF EVERY
THINKING PERSON. AND THE GOAL IS WITHIN OUR
REACH. LET US GRASP THE OPPORTUNITY.

I THANK YOU.



Now -

chattanooga area engineers week

BANQUET

Honoring Our Distinguished Guest

THE VICE PRESIDENT OF THE UNITED STATES

GERALD R. FORD

Monday Evening

February 18, 1974

at the

CHATTANOOGA CHOO CHOO



CHATTANOOGA CHOO-CHOO - TERMINAL STATION - CHATTANOOGA, TENNESSEE - 1973



COMMITTEE CHAIRMEN

General Chairman _____ Richard L. Tallent
Tennessee Valley Authority

Vice Chairman _____ Paris R. Walker
Betts Engineering Company

Banquet _____ Robert J. Bradshaw, Jr.
Bob Bradshaw Company

Banquet _____ J. William Brooks, III
J. W. Brooks & Sons

Engineer-of-the-Year _____ Robert V. Curtis
Tennessee Valley Authority

Publicity _____ Mrs. Earl (Almeda) Frazier
Tennessee Valley Authority

Special Projects _____ Scott R. Penfield, Jr.
Combustion Engineering, Inc.

Student Activities _____ Dr. Norbert Koch
University of Tennessee at Chattanooga

Window Displays _____ James D. Shearouse, Jr.
Eclipse Lookout Company

Membership _____ Henry M. Huie, Jr.
Westinghouse Electric Corp.

Speakers Bureau _____ Alfred A. Burzese
Tennessee Valley Authority

Posters _____ John R. Rennich
Lorain Div-Koehring Company

Treasurer _____ George E. St Cin
Combustion Engineering, Inc.

President's Luncheon _____ Harry G. Waters
Scholze Tannery

PROGRAM

Master of Ceremonies

Robert V. Curtis

Invocation _____ Dr. Jack H. McEwen
Pastor, First Baptist Church

Engineers' Week _____ Richard L. Tallent
General Chairman

Engineer-of-the-Year _____ Presented by Joe H. Wheeler

Mayor, City of Chattanooga _____ Robert Kirk Walker

Judge, Hamilton County _____ Chester L. Frost

Introduction of The Vice President _____ Congressman LaMar Baker

Address

THE VICE PRESIDENT OF THE UNITED STATES

GERALD R. FORD

"The Singing Mocs" _____ University of Tennessee at Chattanooga
Glenn Draper, *Director*

Benediction _____ Rev. John L. Janeway
Rector, St. Thaddaeus' Episcopal Church



ENGINEERS WEEK SPONSORING SOCIETIES

American Institute of Chemical Engineers _____ Richard Ralston
American Institute of Industrial Engineers _____ James W. Corn, Jr.
American Institute of Plant Engineers _____ Paul R. Mitchell
American Nuclear Society _____ Dr. George W. Spangler
American Society of Civil Engineers _____ Tom D. Waller
American Society of Heating, Refrigerating _____ George S. Campbell
and Air-conditioning Engineers
American Society of Mechanical Engineers _____ Edwin H. Schantz
American Society For Metals _____ Jack D. Vincent
American Society of Quality Control Engineers _____ Rodney E. Smith
American Society of Safety Engineers _____ Lon C. Ellis
American Welding Society _____ Hugh N. Dinwiddie
Chattanooga Engineers Club _____ Jack W. Anderson
Gas Appliance Engineers Society _____ Cleaston L. Runion
Illuminating Engineering Society _____ Bill Moore
Institute of Electrical & Electronic Engineers _____ Peter C. Masic
Instrument Society of America _____ James M. McGriff, Jr.
Society of Manufacturing Engineers _____ Earl A. McMillen
Tennessee Society of Professional Engineers _____ George E. St. Cin
TSPE Student Chapter _____ Charles G. Camp

REMARKS BY VICE PRESIDENT GERALD R. FORD
CHATTANOOGA AREA ENGINEERS' WEEK
CHATTANOOGA CHOO CHOO RESTAURANT
7:00 p.m. MONDAY, FEBRUARY 18, 1974



FOR RELEASE AT 7:00 p.m. MONDAY

I am honored to have the opportunity to address your 1974 Engineers' Week here in this vital electrical and energy center known as "the dynamo of Dixie".

There is a growing awareness that the engineer and the skills that he commands are among our greatest resources. Today as never before this great resource must be used wisely and well.

You are to be commended for creating the engineering task force organized during the last year. By drawing from the scientific skills of the 19 engineering societies that comprise your undertaking, you are mobilizing over 1,500 engineers of this area in a consolidated effort to serve our Nation. I salute the Tennessee volunteers for their great Rebel ingenuity.

Tonight I want to address myself to the role of the engineer in the energy crisis. In times of great national need, we turn to the engineer.

In the Fifties our engineers forged ahead with new weapons for our defense.

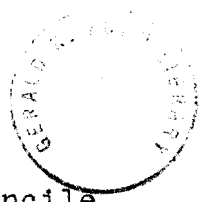
In the Sixties American engineering put Americans on the moon in a single decade.

Now, in the Seventies we turn to the engineer to help solve the energy crisis.

The American engineer has the talent and the ability to solve the energy problem. What we lack is the time required to bring our skills into effective action. Fortunately, in this crisis as in similar situations in the past, ingenuity can be a substitute for time.

An example of this can be found right here in Nashville, where engineers are building a plant to burn solid waste material in a manner that will generate steam to heat and cool office buildings. They are simultaneously serving ecology and conserving energy by turning trash into power. This is exactly the type of

(more)



ingenuity we need.

Today, we look for the engineer who can understand, reconcile and synchronize the demands of energy and environmental protection. We need the engineers who are able to balance priorities, who can merge energy demands with the needs of ecology, so that we can have both a sufficient supply of energy and a clean world in which to live. If we are to develop the required engineering resources to meet these goals the government must render all possible assistance to industry and to our educational institutions.

I am delighted to be able to report that we are already at work in this area.

Experts at the National Science Foundation are conducting a far-reaching manpower study to assess the overall availability and needs of scientific personnel in meeting the energy crisis.

In addition, the National Science Foundation is sponsoring graduate training in energy-related research in the coal, oil shale, geothermal, and solar areas. Post-doctoral programs are planned. Distinguished scientists and engineers are to be invited from abroad. Funds are being provided to train highly skilled technicians. And the technical support of universities and industries is being coordinated and expanded.

Recently the Federal Energy Office in Washington, D. C. uncovered a major new area for the application of American engineering skills and techniques.

It has come forward with an analysis which shows that the American population of 210 million wastes as much energy as the 110 million people in Japan consume. With new techniques and appropriate conservation measures, there are indications we can save between 30 and 40 per cent of the energy we now require.

These statistics pose a great challenge to the engineer.

They ask you to:

- Find ways to stop this waste of energy.
- Increase energy production in the shortest time span possible.
- Preserve the quality of our air and water. And
- Remain mindful that costs must be held as low as possible.

I am confident that the American engineer can meet these specifications.

(more)

The outlook is far from gloomy. In the energy field, America is virtually an underdeveloped nation. There are many energy resources waiting to be tapped.

- We have 1.8 trillion barrels of oil which can be unlocked from the shale formations in Colorado, Wyoming, and Utah, with the proper technology. This is more than the proven reserves of the largest Arab oil producers in the Middle East.
- We have half the free world's proven coal reserves, enough to last for centuries. It awaits the technologies for effective conversion to clean gas and liquid forms, and the technologies which will permit us to mine these vast reserves without despoiling the land.
- Forty per cent of our potential oil and natural gas reserve lies untapped on the Outer Continental Shelf. Not a single exploratory well has been drilled on the Atlantic Outer Continental Shelf. There must be strong assurances that the ocean drilling can be done without the risk of serious environmental damage.
- Once the Alaskan pipeline starts flowing, we can start developing the huge resources in our largest state. No one really knows the extent of those reserves.
- There are millions of acres of proven and potential geothermal areas in the western states. Technology is needed to make them economically useful.
- Research -- much research -- is needed to perfect the use of solar energy, perhaps our greatest untapped energy source.

There are more -- but those are some of the challenges American engineers have to meet and conquer.

There is still a greater -- even more vital -- challenge in which your help is of the greatest importance.

I predict that Project Independence -- President Nixon's program for making the United States self-sufficient in energy needs -- will be supplemented by Project Inter-dependence. That is the worldwide cooperation of mankind to solve the dilemma of constantly growing populations and energy needs, against a finite supply of mineral resources. This goal of worldwide cooperation is being brought within reach by this Administration. Project Interdependence can flourish in the climate of peace created by President Nixon's world policies. In fact, the groundwork is being laid.

Already, the easing of international tensions has been accompanied by substantive exchanges of ideas and experts concerned with advanced energy technologies. American scientists and engineers go to the Soviet Union.

(more)



Russians come here. In Tennessee you have been host to Soviet colleagues at Oak Ridge and Tullahoma. There is special interest in the work on advanced energy cycles. We are learning from each other.

As you know, the oil consuming nations met in Washington last week at President Nixon's invitation. Ensuing from that meeting will be a pooling of engineering resources in energy supply and conservation. We are fostering a new spirit in the world -- a spirit that will transcend temporary differences.

Dr. Kissinger, our Secretary of State, summed it up recently when he said: "We know that the energy crisis indicates the birth pangs of global interdependence. Our response could well determine our capacity to deal with the international agenda of the future."

Your work as engineers will be part of our response.

Therefore, I want to thank the engineers of Tennessee for the progress you have already made in this direction. You are hastening the day when mankind will share its collective genius to bring about an era of worldwide peace, well-being and understanding. But the work has only just begun.

We must all take part. It will require greater effort, greater thought, greater ingenuity, greater concern from each one of us.

The challenge is huge.

But the goal is the dream of every thinking person. And the goal is within our reach. Let us grasp the opportunity.

I thank you.

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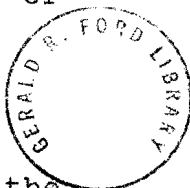
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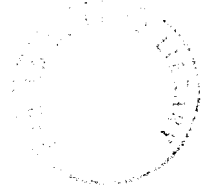
I thank you.

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Feb. 18, 1974

SCHEDULE FOR THE VICE PRESIDENT'S
VISIT TO CHATTANOOGA, TENN.

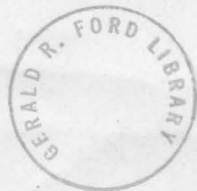


- 2 p.m. Depart Andrews AFB en route ~~Lovell~~ Field, Chattanooga.
(Flying Time: 2 hours, 15 minutes, no time change)
- 4:15 p.m. Arrive Lovell Field
- 4:20 p.m. Vice President greets crowd at Lovell Field, escorted by
Congressman Lamar Baker
- 4:45 p.m. VP departs airport and proceeds by motorcade to Hilton Hotel
Press will travel in bus. Driving Time: 20 minutes.
- 5:45 p.m. Press Conference at Hilton Hotel. VP to be announced by Cong. Baker.
Q. and A. will not begin until after VP has presented a Bicentennial
Proclamation to Chattanooga Mayor Robert Walker, and Walker makes
acceptance remarks.
- 6:15 p.m. Press Conference concludes.
- 6:20 p.m. VIP reception at Chattanooga Choo Choo Restaurant, which is next door
to Hilton Hotel and connected by a tunnel. Because of wishes of local
people, there will be no press coverage of the reception.
- 7 p.m. Dinner at the Chattanooga Choo Choo Restaurant. National press pays \$7.50
apiece. Tickets at the press room in the Choo Choo Restaurant.
Program prior to remarks by VP includes brief speeches by Robert Curtis,
who is MC, Richard Tallent, Engineers Week chairman, Mayor Walker,
Judge Chester Frost, and Congressman Baker. This portion of program
will include presentation of Engineer of the Year Awards by the VP
(assisted by Joe Wheeler) to William Bunn and Herbert McQueen.
- 8:55 p.m. VP speaks.
- 9:15 p.m. VP remarks conclude.
- 9:35 p.m. VP departs via motorcade for private GOP reception at home of Scott Probasco
- 10:35 p.m. VP arrives Lovell Field and boards Convair
- 10:45 p.m. Depart Lovell Field en route Andrews AFB. Flying Time: 1 hr., 45 mins.
- 12:30 a.m. Arrive Andrews AFB.

#####

REMARKS ~~ON~~ ^{BY} VICE PRESIDENT GERALD R. FORD
CHATTANOOGA AREA ENGINEERS' WEEK
CHATTANOOGA CHOO CHOO RESTAURANT
7:00 p.m. MONDAY, FEBRUARY 18, 1974

FOR RELEASE AT 7 p.m. MONDAY
~~Have the opportunity to~~



74 Engineers' Week here

FINAL DRAFT

I am honored to have the opportunity to address your 1974 Engineers' Week here in this vital electrical and energy center known as "the dynamo of Dixie".

There is a growing awareness that the engineer and the skills that he commands ⁹ are among our greatest resources. Today as never before this great ~~man~~ resource must be used wisely and well.

You are to be commended for creating the engineering task force organized during the last year. By drawing from the scientific skills of the 19 engineering societies that comprise your undertaking, you are mobilizing over 1,500 engineers of this area in a consolidated effort to serve our Nation. I salute the Tennessee ^Volunteers for their great Rebel ingenuity.

Tonight I want to address myself to the role of the engineer ~~in~~ in the energy crisis. In times of great national need, we turn to the engineer.

^{Fifties}
In the ~~1960s~~ our engineers forged ahead with new weapons for ~~us~~ our defense.

^{Sixties}
In the ~~1960s~~ American engineering put Americans on the moon in a single decade.

^{Seventies} ^{turn to}
Now, in the ~~1970s~~ we ~~turn to~~ the engineer to help solve the energy ~~crisis~~ crisis.

The American ~~engineer~~ engineer has the talent and the ability to solve the energy problem. What we lack is the time required to bring our skills into effective action. Fortunately, ~~substitution~~ in this crisis ⁹ as in similar situations ⁹ in the past, ingenuity can be a substitute for time.

An example of this can be found right here in Nashville, where engineers are building a plant to burn solid waste material in a manner that will generate steam to heat and cool office buildings. They are simultaneously serving ecology and conserving energy by turning trash into power. This is exactly ~~what~~ the type of ingenuity we need.

Today, we look for the engineer who can understand, reconcile and synchronize ~~the~~ the demands of energy and environmental protection. We need the engineers who are able to balance priorities, ~~who~~ who can merge energy demands with the needs of ~~the~~ ecology, so



that we can have both a sufficient supply of energy and a clean world in which to live. If we are to develop the required engineering resources to meet these goals, the government must render all possible assistance to industry and to our educational institutions.

(I am delighted to be able~~to~~ to report that we are already at work in this area.

(Experts at the ^x~~the~~ National Science Foundation are conducting a far-reaching manpower study to assess the overall availability and needs of scientific personnel in meeting the energy crisis.

In addition, the National Science Foundation is sponsoring graduate training in energy-related research in the coal, oil shale, geothermal, and solar areas. Post-doctoral ~~programs~~ programs are planned. Distinguished scientists and engineers are to be invited from abroad. Funds are being provided to train highly skilled technicians. And the technical support of universities and industries is being coordinated and expanded.

Recently the Federal Energy Office in Washington, D.C. uncovered a major new area for the application of American engineering skills and techniques.

It has come forward with an analysis which shows that the American population of 210 million wastes as much energy as the 110 million people in Japan consume. With new techniques and appropriate conservation measures, ~~we can save between 30 and 40 per cent of the energy we now require.~~ there are indications we can save between 30 and 40 per cent of the energy we now require.

These statistics pose a great challenge to the engineer.

They ask you to:
~~Examine the situation~~

- Find ways to stop this waste of energy.
- Increase energy production in the shortest time span possible.
- Preserve the quality of our air and water. And
- Remain mindful that costs must be held as low as possible.

I am confident that the American engineer can meet these specifications.



The outlook is far from gloomy. In the energy field, America is virtually an under-developed nation. There are many energy resources waiting to be tapped.

--We have 1.8 trillion barrels of oil which can be unlocked from the shale formations in Colorado, Wyoming, and Utah, with the proper technology. This is more than the proven reserves of the largest Arab oil producers in the Middle East.

--We have half the free world's proven coal reserves, enough to last for centuries. It awaits the technologies for effective conversion to clean gas and liquid forms, And the technologies which will permit us to mine these vast reserves without despoiling the land.

--Forty per cent of our potential oil and natural gas reserve lies untapped on the Outer Continental Shelf. Not a single exploratory well has been drilled on the Atlantic Outer Continental Shelf. There must be strong assurances that the ocean drilling can be done without the risk of serious environmental damage.

--Once the Alaskan pipeline starts flowing, we can start developing the ~~size~~ huge resources in our largest state. No one really knows the extent of those reserves ~~which these reserves~~

-- There are millions of acres of proven and potential geothermal areas in the western states. Technology is needed to make them economically useful.

-- Research --much research--is needed to perfect the use of solar energy, perhaps our greatest untapped energy source.

There are more--but those are some of the challenges American engineers have to meet and conquer.

There is still a greater--even more vital--challenge in which your help ~~is~~ is of the greatest importance.

I predict that Project Independence-- Pres. Nixon's program for making the U. S. self-sufficient in energy needs--~~will be~~ will be supplemented by Project Inter-dependence. That is, the worldwide cooperation of mankind to solve the dilemma of constantly growing ~~populations~~ populations ~~meeting~~ and energy needs, against a finite supply of mineral resources.



This goal of worldwide cooperation is being brought within reach by this Administration. Project Interdependence can flourish in the climate of peace created by President Nixon's world policies. In fact, the groundwork ~~has already been laid~~ is being laid.

(Already, the easing of international tensions has been accompanied by substantive ~~changes~~ exchanges of ideas and experts concerned with advanced energy technologies. American scientists and engineers go to the Soviet Union.

(Russians come here. In Tennessee you have been host to Soviet Colleagues at Oak Ridge and Tullahoma. There is special interest in the work on advanced energy cycles. We are learning from each other.

(As you know, the oil consuming nations met in Washington last week at President Nixon's invitation. Ensuing from that meeting will be ~~a~~^{the} pooling of engineering resources in energy supply and conservation. We are fostering a new spirit in the world. ~~A~~ spirit that will transcend temporary differences.

(Dr. Kissinger, our Secretary of State, summed it up recently when he said: "We know that the ~~energy~~ energy crisis indicates the birth pangs of global independence. Our response could well determine our capacity to deal with the international agenda of the future."

(Your work as engineers will be part of our response.

(Therefore, I want to thank ~~the~~^{the} engineers of Tennessee for the progress you have already made in this direction. You~~r~~ are hastening the ~~day~~^{day} when mankind will share its collective genius to bring about an era of world wide peace, well-being and understanding. But the work has only just begun.

(We must all ~~take~~ take part. It will require greater effort, greater thought, greater ingenuity, greater concern from each one of us.

(The challenge is huge.

(But the goal is the dream of every thinking person.

(And the goal is within our reach. Let us grasp the opportunity.

(I thank you.



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2/13/74

OFFICE OF THE VICE PRESIDENT
WASHINGTON, D.C.

ROUGH DRAFT

ONLY



PLEASE GIVE TO

PAUL WHEN

READ THANKS

Bill R

REMARKS OF VICE PRESIDENT GERALD R. FORD
CHATTANOOGA AREA ENGINEERS' WEEK
CHATTANOOGA CHOO CHOO RESTAURANT
7 p.m., MONDAY, FEBRUARY 18, 1974



I am honored to address your 1974 Engineers' Week here in this vital electrical and energy center known as "the dynamo of Dixie".

You are to be commended for your concept of an engineering task force organized during the last year. Engineering is our greatest energy resource. And by drawing from the scientific skills of the 19 engineering societies that comprise your undertaking, you are mobilizing over 1,500 engineers of this area in a consolidated effort to serve our Nation. I welcome this inspiring example of Tennessee volunteers showing this great Rebel ingenuity.

Tonight I want to address myself to the role of the engineer in the energy crisis. ~~██████████~~ We depend on you. American engineering put an American on the moon in A SINGLE decade. ~~[The Soviet Union launched the Sputnik before we put a similar vehicle into orbit. But it was the American flag that was the first to fly on the moon.]~~

I have faith in the American engineer. In the 1950's our engineers forged ahead with new weapons systems for defense. In the 1960's it was the conquest of space. Now, in the 1970's, here in Chattanooga and throughout the United States you are in action to solve the energy crisis.



Let us begin with a look at the profession of engineering .
It is a field of sophisticated career specialities. We need longterm
planning so that the engineer can build his career to coincide with
developing requirements. There are too many engineers with some
qualifications, too few with others . Some are out of work .

^{THE}
You are aware of dropping enrollments in engineering
The schools. /Government ^{AND INDUSTRY MUST} anticipate ~~requirements~~
so that engineers can plan careers. We must encourage more young
people in high school to become engineers, ~~which~~ Our youth can bring
new skills for new technology created by energy developments .

^{ONTO}
The search for energy brings us ~~into~~ a collision course
with the protection of our environment . We need ~~a new breed of~~ the
engineer who can understand and reconcile the conflicting demands
of energy versus environmental protection . We need men who will
understand the complex trade-offs that will be required ~~to~~
^{To} achieve the best possible ^{balancing of} ~~outcomes~~ ^{priorities} ~~leading~~
to the best of both worlds ~~with~~ ^{abundant} ~~energy~~ ^{with a clean} ~~environment~~ .

Experts of the National Science Foundation are conducting a
manpower study to assess the overall availability and needs of
scientific personnel in meeting the energy crisis. The Foundation will
cooperate with the Atomic Energy Commission in providing funding for
training highly-skilled technicians .



If Project Independence is to achieve its goals by 1980 ,
it is the engineer who will get us there . Engineering requires longrange
planning . This is under way in the National Science Foundation and the
new Energy Research and Development Agency .

As some of you may know , the National Science Foundation
is this year sponsoring graduate traineeship in energy-related research
in the [REDACTED] coal and oil shale, geothermal, and solar areas. [REDACTED]
P programs exist in fusion and fission . [REDACTED]
[REDACTED]

Planners in Washington are also preparing a post-doctoral
program and inviting some distinguished foreign scholars .

Responding to the complex energy requirements, [REDACTED]
[REDACTED] we are coordinating technical support of universities and industries.
systems
Energy [REDACTED] are [REDACTED] complicated. Solutions [REDACTED]
[REDACTED] require fundamental knowledge of the physical, biological,
and social laws that govern living patterns and the properties of matter.
We are dealing with the forces of nature and there is not a single
engineering discipline that is not involved in solving the interrelated
problems.

We must make the maximum effective use of existing engineering
skills while producing new scientific and technical manpower ready to
cope with emerging technology. The Administration is dedicating itself
to a permanent, longrange program --- PROJECT Independence [REDACTED]

[REDACTED]

~~We must forge a new relationship between Government and industry to meet energy [REDACTED] demands. This partnership will assure the development, extraction and use of our domestic energy sources.~~

~~Business and industry account for nearly 70 percent of our total energy consumption. It is obvious that the role of business and industry is vital in energy conservation. The free enterprise system depends upon the traditional initiative of the private sector to establish that it is good business to conserve energy.~~

[REDACTED] The Federal Energy Office in Washington now has a very surprising estimate. It is an analysis showing that the American population of 210 million wastes as much energy as the [REDACTED] 110 million people in Japan consume. There are indications that we waste between 30 and 40 percent of the energy we produce.

Engineers are challenged by these statistics. We ask you to perfect ^{NEW} energy conservation technology. And we also want an increase in energy production in the shortest time span possible. But do this while the quality of our air and water ^{continues} to improve ... ^{and you} reduce the danger of nuclear accidents. . . and you find new energy sources. ^{WHILE} [REDACTED] . . . and [REDACTED] remain mindful of the costs.



Nuclear power has failed to enter the energy market as quickly as we expected. We get from nuclear power today about the same amount of energy as we derive from firewood -- around 1 percent of our total energy supply .



The time has come to expand on the promise of nuclear power . Here is yet another challenge for the engineers .

The outlook is far from gloomy . America is virtually an underdeveloped Nation . I want to tell you of some energy with which resources that ~~XX~~ you can work

----- We have 1.8 trillion barrels of oil locked in oil shale formations in Colorado, Wyoming, and Utah. This is more than the proven reserves of the largest Arab oil producers in the Middle East. half

----- We have ~~XXXXXXXXXX~~ the free world's proven coal reserves --- enough to last for centuries . It awaits technologies for gasification and liquefaction.

----- Forty percent of our potential oil and natural gas reserve lies untapped on the Outer Continental Shelf. Not a single exploratory well has been drilled on the Atlantic Outer Continental Shelf .

----- The quicker the Alaskan pipeline flows, the sooner we receive 2 million barrels of oil a day .

-----There are millions of acres of proven and potential geothermal areas in western states .

----- Research^R is awaited to perfect[^] not only nuclear power but also solar energy .

~~XXXXXXXXXXXX~~

^

I refer to the human potential represented by the skill of our engineers and the enterprise of our industry. I refer also to the bountiful resources available to us. The United States is 85 per cent self-sufficient in energy. We are in a better position than virtually any other industrialized nation except Canada --- which has far less population ---- and the Soviet Union, with its ~~xxx~~ much lower standard of living.

36

By 1990 our energy needs will twice as [^] great as they were in 1973 . But I [REDACTED] believe enough in America's human [REDACTED] capacities to predict tonight that we will provide for our needs .



I predict further that Project Independence will lead to
Project Interdependence, a phase of our evolution ^{FOR WHICH} ~~that~~ our
Administration is laying the foundation . When President Nixon
went to Moscow and Peking he opened a new era . When we
extricated ourselves last year from the war in Vietnam we
made it feasible . And when our diplomacy separated the warring
parties in the Middle East, bringing the world back from the brink of
catastrophe , we enhanced the climate of peace in which international
c ooperation can flourish .

Dr. Kissinger, our Secretary of State, has emerged as
a prophet of peace . Dr. Kissinger now sees the facts of nature,
techonology and economics on the side of wider cooperation between
nations. This will become increasingly clear with time .

"As we look toward the end of this century", said Dr. Kissinger ,
"we know that that the energy crisis indicates the birth pangs of global
interdependence. Our response could well determine our capacity to
deal with the international agenda of the future . "

I want to thank you engineers of Tennessee for the work you
are doing . You are hasteneing the day when ^{mankind} will share
 its collective genius to bring about an era of worldwide
peace , well -being, and human understanding .

ATTN: LT. COL. SARDO
(312)-693 6356

REMARKS OF VICE PRESIDENT GERALD R. FORD
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Tonight I want to address myself to the role of the engineer in the energy crisis. We depend on you ^{in times of national} ~~American~~ ^{need} ~~engineering put an American on the moon in a single decade.~~

~~I have faith in the American engineer.~~ In the 1950's our engineers forged ahead with new weapons systems for defense. ~~American engineering put Americans on the moon in a single~~ In the 1960's it was the conquest of space. Now, ~~in~~ ^{lead} the 1970's here in Chattanooga and throughout the United States you are in action to solve the energy crisis.

The American engineer has the talent and ability to solve the energy problem. What we lack is the time required to bring our skills into effective action. A substitute for



for time is ingenuity.

Engineers in Nashville are now building a plant to burn solid waste material in a manner that will generate steam to heat and cool office buildings. They are simultaneously serving ecology and conserving energy by turning trash into power. *Exactly the ingenuity we need.* ~~Let's not~~ ~~problems.~~

Our Nation is counting on the profession of engineering with its many and sophisticated specialties. The Administration recognizes the need for longterm energy planning so that the engineer can build his career to coincide with developing requirements. ~~There is not a single engineering discipline that is not involved in solving the complex and interrelated problems.~~

But there are too many engineers with some qualifications, too few with others. You are aware of the dropping enrollment in engineering schools. The time has come for Government and industry to anticipate needs so that engineers can plan careers and be assured of job opportunities. High school youths must again find excitement in choosing the engineering profession.

We need the engineer who can understand, reconcile, and synchronize demands of energy and environmental protection; the engineer who seeks a career of social relevance, and the engineer who is able to ingenuously balance priorities to merge energy demands with those of the ecology so that we may share the best of both worlds.

A high priority is assigned to the retraining of engineers.



The Federal Energy Office will sponsor professional workshops to update skills. Universities are preparing to offer appropriate instruction. Studies are being done at Harvard University, for instance, on how to alter courses to train engineers in the required disciplines.

~~Just as we look back at the origins of this energy impasse, we must look ahead to new studies and new specialties.~~

And, Experts at the National Science Foundation are conducting a far-reaching manpower study to assess the overall availability and needs of scientific personnel in meeting the energy crisis. If Project Independence is to achieve its goals of self-dependence by 1980 we must rely upon the engineer. We are determined that the Government render all possible assistance to industrial and educational institutions ^{for the} ~~to facilitate~~ longrange planning required to improve engineering resources.

The National Science Foundation is this year sponsoring graduate training in energy-related research in the coal and oil shale, geothermal, and solar areas. ^S ~~Post~~-doctoral programs are planned. Distinguished scientists and engineers are to be invited from abroad. Funds are being provided to train highly-skilled technicians. We are coordinating technical support of universities and industries.

~~Engineering is just one aspect of Administration action. The United States Office of Education, for instance, is offering instructional guidance to ~~universities~~ -- beginning with children in the elementary grades -- aware of the role of energy in our lives.~~

omit

TO MAKE AMERICANS

omit

~~We anticipate that the research and development component of Project Independence will require about \$10 billion of Government funds during its first 5 years. These funds will complement an even larger research and development investment by the private sector. We hope to stimulate adequate supplies of fuel through the mechanism of the free market. To this end, we seek cooperation of Government and ^{PRIVATE} industrial planning. We are convinced that Federal encouragement of energy R. & D. can speed the commercial availability of new energy technologies.~~

The Federal Energy Office in Washington ~~now~~ has a very surprising estimate. It is an analysis showing that the American population of 210 million wastes as much energy as the 110 million people in Japan consume. There are indications that, given time, we can save between 30 and 40 percent of the energy we ^{Now} require.

Engineers are challenged by these statistics.

We ^{ASK} you to:

FIND WAYS TO STOP THIS WASTE OF ENERGY.
~~perfect a new and innovative energy conservation technologies.~~

~~to~~ increase energy production in the shortest time span possible.

~~to~~ Tap new energy sources.

~~to~~ Preserve the quality of our air and water. And ~~to~~

~~to~~ Remain mindful of the costs.

I am confident that the American engineer can meet these specifications.

Nuclear power has failed to enter the energy market as quickly as we expected. We get from nuclear power today about the same amount of energy as we derive from firewood --



around 1 percent of our total energy supply. But we are counting on this energy source for much of the growth in our electrical supply over the next decade.

The time has come to expand on the promise of nuclear power. Here is yet another challenge for engineers.

The outlook is far from gloomy. America is virtually an underdeveloped Nation. I want to tell you of some energy resources that with which you can work.

-- We have 1.8 trillion barrels of oil ^{waiting to be unlocked from} ~~locked in~~ oil shale formations in Colorado, Wyoming, and Utah. This is more than the proven reserves of the largest Arab oil producers in the Middle East.

-- We have half the free world's proven coal reserves -- enough to last for centuries. It awaits technologies for ^{effective} ~~gasification and liquification.~~ conversion to the cleaner gas and liquid forms,

-- Forty percent of our potential oil and natural gas reserve lies untapped on the Outer Continental Shelf. Not a single exploratory well has been drilled on the Atlantic Outer Continental Shelf.

-- The quicker the Alaskan pipeline flows, the sooner we receive 2 million barrels of oil a day.

-- There are millions of acres of proven and potential geothermal areas in western states.

-- Research is ^{needed} ~~awaited~~ to perfect solar energy.

American engineers have new frontiers to conquer. Consider our vast coal resources. How do we mine coal without despoiling the land? How do we burn coal or convert it to a clean fuel



without polluting the air? Solve this and you offer a social ^{will} contribution that will enhance the quality of life and the sanctity of nature.

By 1990 the energy needs of the United States will be twice as great as they were in 1973. I believe that our natural resources will be skillfully and adequately developed because I believe in our human resources.

I predict that Project Independence will be supplemented by Project Interdependence, a phase of mankind's evolution brought within reach by this Administration. Project Interdependence can flourish in the climate of peace created by President Nixon, ~~when he so dramatically improved relations with the Soviet Union and the People's Republic of China. This climate was improved when we extricated ourselves, with honor, from the war in Vietnam. It was further enhanced when our diplomacy separated the warring parties in the Middle East, bringing the world back from the brink of catastrophe.~~

~~The~~ easing of international tensions has been accompanied by substantive exchanges of ideas and experts concerned with advanced energy technologies. American scientists and engineers go to the Soviet Union. Russians come here. Here in Tennessee you have been host to Soviet colleagues at Oak Ridge and Tullahoma. There is special interest in the work on advanced energy cycles, (~~magnetohydrodynamics~~). We are learning from each other.

Oil-consuming nations met in Washington last week at



President Nixon's invitation. Ensuing from that meeting will be a pooling of resources in energy supply and conservation. We are fostering a new spirit in the world -- a spirit that will transcend temporary differences.

Dr. Kissinger, our Secretary of State, has emerged as a prophet of peace. *Listen to what he says about* ~~Dr. Kissinger now sees the facts of nature, technology and economics on the side of wider cooperation between nations. This will become increasingly clear with time.~~

~~"As we look toward the end of this century", said Dr. Kissinger,~~ *We* know that that the energy crisis indicates the birth pangs of global interdependence. Our response could well determine our capacity to deal with the international agenda of the future." *Dr. Kissinger's words point the way for us.*

I want to thank you engineers of Tennessee for the work you are doing. You are hastening the day when mankind will share its collective genius to bring about an era of worldwide peace, well-being, and understanding.

#



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LISTE OF NEWSMEN FOR THE CHATTANOOGA TRIP.

FEB. 18, 1974



1. Phil Jones. CBS 296-1234
2. Ralph Santos. CBS 296-1234
3. Charles Frahks. CBS 296-1234
4. Harry Lee Clark. CBS 296-1234
5. Maggie Hunter. N. Y. Times 293-3100
6. Bob Leonard. Voice of America 755-4444
7. Frank VanderLinden. Nashville Banner 544-5200
8. Bob Holmqvist. ~~Swedish~~ Swedish TV 347-2022
9. Bjorn Bondeson Swedish TV 347-2022
10. Dan Holmberg Swedish TV 347-2022