

---

**Franklin D. Roosevelt — “The Great Communicator”**  
**The Master Speech Files, 1898, 1910-1945**

**Series 2: “ You have nothing to fear but fear itself:” FDR  
and the New Deal**

---

**File No. 919-B**

**1936 September 11**

**Washington, D.C. - Greetings to the Third World  
Power Conference**

Third World Power Conference

I desire to add my personal greeting to the official greeting which it has been the pleasure of the Government of the United States to extend to you. The United States considers it an honor and a privilege to be the host of the Third World Power Conference and of the Second Congress of the International Commission on Large Dams.

The World Power Conference and its associated International Commission are notable institutions. Science and other fields of learning, engineering and other professions, have for years maintained close international contacts for enrichment of their knowledge and development of their techniques. It is one of the noteworthy achievements of our generation that business men, engineers, lawyers, social workers and other people of affairs, should meet in international assemblies not merely for promotion of the abstract sciences and techniques in which they may respectively be interested, but for exploration of the application of these to national welfare and betterment of the conditions of human life.

There are very special reasons why we in the United States prize the opportunity to provide the forum for discussion of the problems which are being presented to your Conference. In the first place, <sup>we</sup> are relatively a young nation just emerging from the period of youth and adolescence and facing the problems of matured national life. Many among you represent nations of longer experience. <sup>For</sup> In the second place, <sup>we</sup> have a strong conviction that any success we may have in organizing the household of this nation now come of age, will depend in large measure on the degree to which and the manner in which we make available the natural energies which have been given us in great abundance. We shall therefore study the records of your proceedings with painstaking care.

On numerous occasions competent scholars have brought to our attention the indications of approaching national maturity. The period of our youth was a period of enthusiasm for more and more and bigger and bigger. For a century population increased, both naturally and by immigration, at an exceptional rate; but recently there has set in a decline in the rate of increase. Experts in vital statistics now calculate that we shall have reached a point of stationary population within approximately the next twenty-five years. For <sup>the</sup> ~~two~~ <sup>two</sup> century the dramatic aspect of national growth was territorial expansion - successive waves from the Atlantic to the Allegheny

Mountains, to the prairies of the Mississippi Valley, to the Pacific Coast. The addition of improved lands has come to a stop; in fact, <sup>in many parts</sup> we have overdone it and must restore some of them to more natural conditions. For a century there was an extraordinary increase of energy and other technical facilities, and in productivity; but for the past quarter century, notwithstanding the new sources and forms of power, and its greater flexibility in use, the rate of increase in gross productivity has been declining.

With these have appeared other evidences of maturity. For a period following the establishment of the Union about 85 per cent of our people lived on farms; today nearly 75 per cent live in cities and villages. During our earlier years the proportion of young people in the population increased much more rapidly than the proportion of old people. Today for various reasons - such as the decline in immigration and the birth rate, the progress of medicine, <sup>and</sup> more hygienic methods of living - the proportion of old is increasing more rapidly than the proportion of young people.

With such changes have come also changes in social habits and in points of view. There are those still living who can remember when it took one farmer to provide the sustenance for one non-farmer. In the earlier day farmer

and non-farmer alike measured their security and comfort by the bushels of potatoes, slabs of bacon, pounds of sugar and the barrels of flour in cellar or kitchen. Today they measure security by the flow of money income and savings in a bank or insurance company, and by the stability of these. The physical means of subsistence are now doled out by grocer and butcher in the form of a daily half-pound of this and half-dozen of that. The line of communications between one's actual sustenance and his base of supplies has become exceedingly tenuous and subject to serious interruptions.

Under ~~such~~ conditions of maturity of a nation there is, justifiably, an increasing concern on the part of nearly every citizen for his economic security. In the earlier days of our nation's youth there was no such dominating concern. As a people we could then be happy-go-lucky - a characteristic of youth. Let Father worry! is a characteristic bit of American slang. For our young nation it was Mother Nature who should worry. Had she not given us abundance inexhaustible? Horace Greeley could say "Go west, young man, go west". Young men then went west. Most of them found security; many of them opulence. But today as young men of the east look west, so young men of the west look east; and none of them sees that obvious, simple means of security which Horace Greeley saw. Today security is a matter of intensive struggle by each individual,

and even then it is not assured.

Young men of today, with the prospect of living to a riper old age than their fathers, have a right to be concerned about opportunity to achieve security for middle age and for old age. Those already advanced in years, looking about and seeing the ravages of the recent depression, have a right to be concerned.

National maturity requires that we have new points of view, and that we do some things in different ways.

This matter of economic security, I take it, is not to be achieved by aiming for restriction of national income - real national income - but by aiming for abundance <sup>more</sup> and ~~more widely distributed~~. ~~Scarcity may establish a setting wherein everyone is compelled to work hard, but that does not assure either a satisfying standard of living or security.~~ A satisfying standard of living and security, for a national household of nearly 130 million people, <sup>is</sup> to be realized only by high productivity, broadly and equitably distributed, and wisely proportioned with respect to its drain on natural resources and to the variety of human wants it is destined to satisfy.

It is for such reasons that your deliberations are of significance to us, and will be followed with minute attention. Your scientific and engineering genius ~~has~~ destroy<sup>ing</sup>

Insert A

These two questions, more simply stated, resolve themselves into this: Are you and I paying enough attention to "human engineering?"

There are many aspects of the problem. For example, it is possible to conceive that the conversion and application of energy will, in the coming generation, be so directed that half of the population can provide the basic machine made products necessary for the welfare of the whole of the population. We can conceive that this would mean that the people between 20 and 50 years of age will be able to produce the basic commodities for themselves and for all others below and above those ages.

If that condition should arise, it is the duty of you who would be so greatly responsible for it to think what would be the result to our ~~future~~, our culture and our way of life. I would suggest that the answer should not be left solely in the hands of bankers, government officials or demagogues.

In anticipation of all manner of possibilities and simultaneously with the study of their far-reaching results, we can and must take every preparatory step now within our power.

End -- rest of page 8.

one world - the world of relative scarcity - but has it  
~~unintended to~~  
yet created the new world of abundance which is potential  
in your command over natural energies? Is creation of ~~that~~  
~~new world of potential abundance~~ dependent on further scientific-  
fic and engineering achievements so much as on suitable or-  
ganization and utilization of the engineering already incor-  
porated into your technique?

*In sight*  
A.

You have destroyed forever the sweat-of-the-brow philosophy  
of life. You have destroyed forever dependence on human beings  
and on beasts of burden for the energy with which man fabricates  
materials for his use. Witness the traveling crane, the derrick,  
the hoist, the steam shovel, the concrete mixer. You  
combine energy into huge blocks, as in the trans-Atlantic  
liner; or divide it and apply it in minute quantity, as in  
the tiny "grain of wheat" bulb of surgical use. You have re-  
moved in large measure necessity for the fatigues involved in  
intensive watching, regulating and adjusting. Witness the  
automaticity of steel mills and machine shops, of textile mills  
and printing shops! Already, to a notable degree, you are re-  
lieving man of the need of his physical presence where conver-  
sion operations are being carried on by nature's controlled  
energies. Witness the delicate reactions and controls of the  
photoelectric cell. All such things are ours to command. They  
are free to every people. Can we say that we have made even  
the beginning of organization for their effective use, to the  
benefit of human living?

There are many aspects of this problem, of which only a few can be touched on in a brief address. Is it possible, for instance, that energy conversion and application can be so integrated and directed that the labor of say half of the population can provide the basic machine-made products necessary for the welfare of the whole; or, in other words, that those between twenty and fifty years of age can produce basic commodities for themselves and all the others? If that, or any approximation of it, be possible, good education for all and achievement of economic security for all is not beyond human reach. It could mean high cultural achievement; those relieved from production of physical commodities would be released at one extreme of life for more adequate education, and at the other extreme for service expressing natural or acquired talents enriched by a life-time of experience. One can envisage in his imagination, for instance, a young man born with a talent for music. Development of that talent forms part of his early and prolonged education. Through middle life he is a textile operative, or a pressman or a worker in leather. In later life he contributes to the social income by serving as one of the many musicians who form the thousands of community orchestras of which a country may be fortunately possessed. Or his talent may have been such that he becomes a physician who pursues his vocation assiduously

through middle life, and in later years contributes to the social welfare in the service of guarding the health of the nation's children. Or his talent may have been for the woods, and for sailing and fishing - I have met gentlemen of that temperament - and in mature years he continues his service to his society as scoutmaster for the neighboring youth. There is something fascinating in these concepts, and it is a responsibility resting on all engineers to explore the feasibility of freeing man for self-expression of his talents by making natural energies do the larger part of the work of the world for him.

Such a goal cannot be achieved unless we assume it can be achieved, and in anticipation of it we take every preparatory step now within our power. Fundamental among these is conservation of resources; their evaluation in terms of the services they may render, including the conditions under which these may be rendered, and their utilization in the light of such evaluation. Although it is a principle of physics that energy cannot be destroyed, it has been revealed by experience that man can destroy those particular forms of energy in which it is usable by him. In such an evaluation the physical and mental energies of human beings must be included with coal, petroleum, gas, electricity and other forms of energy. To make such an

*and Incentive*  
A

One of the social changes brought on by the invention and use of the steam engine was the aggregation of workers into large factories and the concentration of people into large cities. ~~Collected to these effects~~ has been the development of specialization, indirect methods of production, elongation of the tenuous line between worker and the physical means of his subsistence, dependence of large groups of workers on the judgment and interest of employers, intensification of unemployment, and its disastrous consequences where forces bring it about. This combination of elements has for years been recognized as a serious national problem, and we have not known what to do about it. ~~All business~~ Workers had to go to the steam engine, whose energy could not be divided into parts and sent out to them.

Now we have electric energy which can be and generally is produced in places other than where fabrication of usable goods is carried on. But by habit we continue to carry this flexible energy in great blocks into the same great factories, and continue to carry on our production there. Sheer inertia has caused us to neglect formulating a public policy that would promote opportunity for people to take advantage of the flexibility of electric energy; that would send it out wherever and whenever wanted at the lowest possible cost. We in the United States, because we have not taken thought

~~and adopted a policy, are continuing the forms of over-centralization of industry caused by the characteristics of the steam engine, long after we have had technically available a form of energy which should promote decentralization of industry. However, one can look with reasonable hope towards a natural increase of decentralization within many industries, provided there are inviting environmental conditions, one of the most important of which would be a more complete coverage of the country at the lowest possible economically sound rates. What is economically sound is to be determined by social accounting more than by the accounting of private business.~~

*In set 13*

I had occasion recently to visit the Great Plains area of the United States where the greatest drought since the settlement of that area has thrown an oppressive burden upon the people of those States. I wanted to see realities and better to understand the significance of numerous reports which had been made concerning conditions in the area. I wanted to confer with the governors of the States affected, which must work together as States never have before in time of peace, and with which the Federal Government must work courageously and sympathetically. I wanted to receive on the ground the report of a special committee which had been

Insert B

I had occasion recently to visit the Great Plains area of the United States where the greatest drought in ~~the~~ history has thrown an oppressive burden upon the people of those states. In planning for the better use of those millions of acres, power is a factor of vital importance -- power to be used primarily for the conserving of the water supply -- power, the application of which is essential not only to the cities but to the farms and ranches of that whole area.

I speak of power in its many forms. It may be true, as I understand some of the authorities among you prophesy, that the world's oil reserves, because of their limited supply, soon may have to be apportioned to specific uses. It may be true that new applications of alcohol, processed from the products of the soil, may increase the usefulness of the internal combustion engine; but in any event it seems most probable that a greater availability of electrical ~~engin~~ energy is absolutely essential in every sector, rural as well as urban, in the United States and, indeed, in the whole world.

End B

and other ways, the work of the rural housewife can be made less onerous, and the home life can be made much more comfortable for the entire family.

If, as I understand some of the authorities among you prophesy, the world's oil resources because of their limited supply will have to be held in reserve, and their products apportioned to specific uses; and if as a consequence of that the cost of power from internal combustion engines is increased; then availability of electric energy is absolutely essential in every sector, rural as well as urban, of the United States.

*Final Draft B*  
A sound and courageous public policy will lead towards its consummation.

One who considers the matter with forthright vision cannot convince himself that public policy for promotion of availability of electric energy can really harm the electric industry that exists in the United States today. It would give opportunity for that industry to add to achievements already great, new achievements that would be even greater. The more integrated its sources of energy, the less it would require of excess capacity and the lower would be its costs. The broader the base of consumers of a product that is now classed as a necessity, the lower would be its costs and the greater its stability. Years ago

Steinmetz observed that electricity is expensive because it is not widely used, and it is not widely used because it is expensive. Notwithstanding reductions in rates and increase of consumption since his day - which, by the way, has demonstrated the truth of his words - that observation still holds true. There is a vicious circle which must be broken, and wise public policy will help to break it.

I still hold to the belief of two years ago, when I spoke as follows:

We are going to see, I believe, with our own eyes electricity and power made so cheap that they will become a standard article of use, not only for agriculture and manufacturing, but also for every home within reach of an electric light line.

The experience of those sections of the world that have cheap power proves very conclusively that the cheaper the power the more of it is used.

These words were spoken at Grand Coules. The Government of the United States has promoted the construction of several great reservoirs, which you will inspect on your grand tour, primarily for navigation or reclamation, but with incidental values for flood control and the regulation of stream flow. Among other incidental values is the generation of electric power. This may prove to be the force that breaks the vicious circle to which I have referred. If these are not sufficient, the influence of additional meritorious projects awaiting development can be added.

Two great dams of the Tennessee Valley Authority have been completed and are making their contribution to the public weal. Grand Coulee is far enough along to enlist your interest, as also is Bonneville. At <sup>My the mighty Colorado</sup> Boulder Dam the gates were closed months ago; a great lake has come into being behind the dam; generating equipment has been installed in the power plant; and at this moment the powerful turbines are awaiting the relatively tiny impulse of electric current which will flow from the touch of my hand on the button which you see before me on the desk, to stir them to life and creative activity.

*Spée* \_\_\_\_\_  
Boulder Dam; in the name of the people of the United States, to whom you are a symbol of greater things in the future; in the presence, which honors us, of guests from many nations; I call you to life!

24-11-363

Third World Power Conference

Summer 1936  
by author of "Little Waters,  
Stanford S. Pearson.

OK (1501) File

I desire to add my personal greeting to the official greeting which it has been the pleasure of the Government of the United States to extend to you. The United States considers it an honor and a privilege to be the host of the Third World Power Conference and of the Second Congress of the International Commission on Large Dams.

The World Power Conference and its associated International Commission are notable institutions. Science and other fields of learning, engineering and other professions, have for years maintained close international contacts for enrichment of their knowledge and development of their techniques. It is one of the noteworthy achievements of our generation that business men, engineers, lawyers, social workers and other people of affairs, should meet in international assemblies not merely for promotion of the abstract sciences and techniques in which they may respectively be interested, but for exploration of the application of these to national welfare and betterment of the conditions of human life.

There are very special reasons why we in the United States prize the opportunity to provide the forum for discussion of the problems which are being presented to your Conference. In the first place, we are relatively a young nation just emerging from the period of youth and adolescence and facing the problems of matured national life. Many among you represent nations of longer experience. In the second place, we have a strong conviction that any success we may have in organizing the household of this nation now come of age, will depend in large measure on the degree to which and the manner in which we make available the natural energies which have been given us in great abundance. We shall therefore study the records of your proceedings with painstaking care.

On numerous occasions competent scholars have brought to our attention the indications of approaching national maturity. The period of our youth was a period of enthusiasm for more and more and bigger and bigger. For a century population increased, both naturally and by immigration, at an exceptional rate; but recently there has set in a decline in the rate of increase. Experts in vital statistics now calculate that we shall have reached a point of stationary population within approximately the next twenty-five years. For a century the dramatic aspect of national growth was territorial expansion - successive waves from the Atlantic to the Allegheny

Mountains, to the prairies of the Mississippi Valley, to the Rocky Mountains, to the Pacific Coast. The addition of improved lands has come to a stop; in fact, we have overdone it and must restore some of them to more natural conditions. For a century there was an extraordinary increase of energy and other technical facilities, and in productivity; but for the past quarter century, notwithstanding the new sources and forms of power, and its greater flexibility in use, the rate of increase in gross productivity has been declining.

With these have appeared other evidences of maturity. For a period following the establishment of the Union about 85 per cent of our people lived on farms; today nearly 75 per cent live in cities and villages. During our earlier years the proportion of young people in the population increased much more rapidly than the proportion of old people. Today for various reasons - such as the decline in immigration and the birth rate, the progress of medicine, more hygienic methods of living - the proportion of old is increasing more rapidly than the proportion of young people.

With such changes have come also changes in social habits and in points of view. There are those still living who can remember when it took one farmer to provide the sustenance for one non-farmer. In the earlier day farmer

and non-farmer alike measured their security and comfort by the bushels of potatoes, slabs of bacon, pounds of sugar and the barrels of flour in cellar or kitchen. Today they measure security by the flow of money income and savings in a bank or insurance company, and by the stability of these. The physical means of subsistence are now doled out by grocer and butcher in the form of a daily half-pound of this and half-dozen of that. The line of communications between one's actual sustenance and his base of supplies has become exceedingly tenuous and subject to serious interruptions.

Under such conditions of maturity of a nation there is, justifiably, an increasing concern on the part of nearly every citizen for his economic security. In the earlier days of our nation's youth there was no such dominating concern. As a people we could then be happy-go-lucky - a characteristic of youth. Let father worry! is a characteristic bit of American slang. For our young nation it was Mother Nature who should worry. Had she not given us abundance inexhaustible? Horace Greeley could say "Go west, young men, go west". Young men then went west. Most of them found security; many of them opulence. But today as young men of the east look west, so young men of the west look east; and none of them sees that obvious, simple means of security which Horace Greeley saw. Today security is a matter of intensive struggle by each individual,

and even then it is not assured.

Young men of today, with the prospect of living to a riper old age than their fathers, have a right to be concerned about opportunity to achieve security for middle age and for old age. Those already advanced in years, looking about and seeing the ravages of the recent depression, have a right to be concerned.

National maturity requires that we have new points of view, and that we do some things in different ways.

This matter of economic security, I take it, is not to be achieved by aiming for restriction of national income - real national income - but by aiming for abundance. Scarcity may establish a setting wherein everyone is compelled to work hard, but that does not assure either a satisfying standard of living or security. A satisfying standard of living and security, for a national household of nearly 130 million people, are to be realized only by high productivity, broadly and equitably distributed, and wisely proportioned with respect to its drain on natural resources and to the variety of human wants it is destined to satisfy.

It is for such reasons that your deliberations are of significance to us, and will be followed with minute attention. Your scientific and engineering genius has destroyed

one world - the world of relative scarcity - but has it yet created the new world of abundance which is potential in your command over natural energies? Is creation of that new world of potential abundance dependent on further scientific and engineering achievements so much as on suitable organization and utilization of the engineering already incorporated into your technique?

You have destroyed forever the sweat-of-the-brow philosophy of life. You have destroyed forever dependence on human beings and on beasts of burden for the energy with which man fabricates materials for his use. Witness the traveling crane, the derrick, the hoist, the steam shovel, the concrete mixer. You combine energy into huge blocks, as in the trans-Atlantic liner; or divide it and apply it in minute quantity, as in the tiny "grain of wheat" bulb of surgical use. You have removed in large measure necessity for the fatigues involved in intensive watching, regulating and adjusting. Witness the automaticity of steel mills and machine shops, of textile mills and printing shops! Already, to a notable degree, you are relieving man of the need of his physical presence where conversion operations are being carried on by nature's controlled energies. Witness the delicate reactions and controls of the photoelectric cell. All such things are ours to command. They are free to every people. Can we say that we have made even the beginning of organization for their effective use, to the benefit of human living?

There are many aspects of this problem, of which only a few can be touched on in a brief address. Is it possible, for instance, that energy conversion and application can be so integrated and directed that the labor of say half of the population can provide the basic machine-made products necessary for the welfare of the whole; or, in other words, that those between twenty and fifty years of age can produce basic commodities for themselves and all the others? If that, or any approximation of it, be possible, good education for all and achievement of economic security for all is not beyond human reach. It could mean high cultural achievement; those relieved from production of physical commodities would be released at one extreme of life for more adequate education, and at the other extreme for service expressing natural or acquired talents enriched by a life-time of experience. One can envisage in his imagination, for instance, a young man born with a talent for music. Development of that talent forms part of his early and prolonged education. Through middle life he is a textile operative, or a pressman or a worker in leather. In later life he contributes to the social income by serving as one of the many musicians who form the thousands of community orchestras of which a country may be fortunately possessed. Or his talent may have been such that he becomes a physician who pursues his vocation assiduously

through middle life, and in later years contributes to the social welfare in the service of guarding the health of the nation's children. Or his talent may have been for the woods, and for sailing and fishing - I have met gentlemen of that temperament - and in mature years he continues his service to his society as scoutmaster for the neighboring youth. There is something fascinating in these concepts, and it is a responsibility resting on all engineers to explore the feasibility of freeing man for self-expression of his talents by making natural energies do the larger part of the work of the world for him.

Such a goal cannot be achieved unless we assume it can be achieved, and in anticipation of it we take every preparatory step now within our power. Fundamental among these is conservation of resources; their evaluation in terms of the services they may render, including the conditions under which these may be rendered, and their utilization in the light of such evaluation. Although it is a principle of physics that energy cannot be destroyed, it has been revealed by experience that man can destroy those particular forms of energy in which it is usable by him. In such an evaluation the physical and mental energies of human beings must be included with coal, petroleum, gas, electricity and other forms of energy. To make such an

evaluation, a higher form of accounting than any yet developed by commerce and industry appears to be essential. It must be a form of accounting that takes social values, now left to mere assumption, into its calculations and measures them. If a nation were to establish in its social balance sheet a capital account for its energy assets, and were to charge against that account the water it permits to go unused, as well as the coal that is used; or if the petroleum industry were charged with the gas it permits to go to waste - a quantity that is enormous in the United States; then perhaps all citizens would perceive that public policy and private conduct in respect of natural resources should be quite different from what they now are.

It seems to me, a layman, that the outstanding gift of modern science and engineering to society is greater knowledge of the characteristics of electric energy, and a very substantial degree of command over it. Its flexibility is what makes it impressive; its transportability; its divisibility. The invention and adaptation to use of the steam engine was a great event in human history. It caused an industrial revolution; it remade the world. It created new social-industrial problems many of which are still far from solution. It is not irrational to believe that in our command over electric energy a corresponding industrial and social revolution is potential; that it may already be under way without our perceiving it.

One of the social changes brought on by the invention and use of the steam engine was the aggregation of workers into large factories and the concentration of people into large cities. Collateral to these effects has been the development of specialization, indirect methods of production, elongation of the tenuous line between worker and the physical means of his subsistence, dependence of large groups of workers on the judgment and interest of employers, intensification of unemployment, and its disastrous consequences where forces bring it about. This combination of elements has for years been recognized as a serious national problem, and we have not known what to do about it. All because workers had to go to the steam engine, whose energy could not be divided into parts and sent out to them.

Now we have electric energy which can be and generally is produced in places other than where fabrication of usable goods is carried on. But by habit we continue to carry this flexible energy in great blocks into the same great factories, and continue to carry on our production there. Sheer inertia has caused us to neglect formulating a public policy that would promote opportunity for people to take advantage of the flexibility of electric energy; that would send it out wherever and whenever wanted at the lowest possible cost. We in the United States, because we have not taken thought

and adopted a policy, are continuing the forms of over-centralization of industry caused by the characteristics of the steam engine, long after we have had technically available a form of energy which should promote decentralization of industry. However, one can look with reasonable hope towards a natural increase of decentralization within many industries, provided there are inviting environmental conditions, one of the most important of which would be a more complete coverage of the country at the lowest possible economically sound rates. What is economically sound is to be determined by social accounting more than by the accounting of private business.

I had occasion recently to visit the Great Plains area of the United States where the greatest drought since the settlement of that area has thrown an oppressive burden upon the people of those States. I wanted to see realities and better to understand the significance of numerous reports which had been made concerning conditions in the area. I wanted to confer with the governors of the States affected, which must work together as States never have before in time of peace, and with which the Federal Government must work courageously and sympathetically. I wanted to receive on the ground the report of a special committee which had been

appointed to study the problem created by the drought and recommend lines of action for the States and the Federal Government in cooperation.

I was much impressed by the comprehensive and constructive nature of that report. But what I particularly desire to refer to at the present moment is my impression of the extent to which that flexible energy, electricity, can play a part in bringing to successful result many of the recommendations of the Committee.

It is desirable not only in the Great Plains area, but in all agricultural areas throughout the United States.

Where superior soils are reclaimed by irrigation, electricity has already proved to be a necessity for pumping. Where soils for their conservation are returned to grass, and grazing is reestablished, stock watering reservoirs and tanks are necessary, and in connection with these economical pumping facilities are advantageous. Where on unusually favorable grass-covered soils a more intensive animal husbandry is developed, electricity is desirable not only for pumping, but for refrigeration, milking and other important uses. Even in more humid areas electricity is desirable for supplementary irrigation, whereby water is applied to a crop at its most critical period of growth, thereby increasing yield to an astonishing degree. In addition to its use for outside productive purposes, in these

and other ways, the work of the rural housewife can be made less onerous, and the home life can be made much more comfortable for the entire family.

If, as I understand some of the authorities among you prophesy, the world's oil resources because of their limited supply will have to be held in reserve, and their products apportioned to specific uses; and if as a consequence of that the cost of power from internal combustion engines is increased; then availability of electric energy is absolutely essential in every sector, rural as well as urban, of the United States.

A sound and courageous public policy will lead towards its consummation.

One who considers the matter with forthright vision cannot convince himself that public policy for promotion of availability of electric energy can really harm the electric industry that exists in the United States today. It would give opportunity for that industry to add to achievements already great, new achievements that would be even greater. The more integrated its sources of energy, the less it would require of excess capacity and the lower would be its costs. The broader the base of consumers of a product that is now classed as a necessity, the lower would be its costs and the greater its stability. Years ago

Steinmetz observed that electricity is expensive because it is not widely used, and it is not widely used because it is expensive. Notwithstanding reductions in rates and increase of consumption since his day - which, by the way, has demonstrated the truth of his words - that observation still holds true. There is a vicious circle which must be broken, and wise public policy will help to break it.

I still hold to the belief of two years ago, when I spoke as follows:

We are going to see, I believe, with our own eyes electricity and power made so cheap that they will become a standard article of use, not only for agriculture and manufacturing, but also for every home within reach of an electric light line.

The experience of those sections of the world that have cheap power proves very conclusively that the cheaper the power the more of it is used.

These words were spoken at Grand Coulee. The Government of the United States has promoted the construction of several great reservoirs, which you will inspect on your grand tour, primarily for navigation or reclamation, but with incidental values for flood control and the regulation of stream flow. Among other incidental values is the generation of electric power. This may prove to be the force that breaks the vicious circle to which I have referred. If these are not sufficient, the influence of additional meritorious projects awaiting development can be added.

Two great dams of the Tennessee Valley Authority have been completed and are making their contribution to the public weal. Grand Coulee is far enough along to enlist your interest, as also is Bonneville. At Boulder Dam the gates were closed months ago; a great lake has come into being behind the dam; generating equipment has been installed in the power plant; and at this moment the powerful turbines are awaiting the relatively tiny impulse of electric current which will flow from the touch of my hand on the button which you see before me on the desk, to stir them to life and creative activity.

Boulder Dam; in the name of the people of the United States, to whom you are a symbol of greater things in the future; in the presence, which honors us, of guests from many nations; I call you to life!

*Bottom Copy*  
ADDRESS OF THE PRESIDENT TO THE WORLD POWER  
CONFERENCE, CONSTITUTION HALL, WASHINGTON,  
FRIDAY, SEPTEMBER 11, 1936.

0919

I desire to add my personal greeting to the official greeting which it has been the pleasure of the Government of the United States to extend to you. The United States considers it an honor and a privilege to be the host of the Third World Power Conference and of the Second Congress of the International Commission on Large Dams.

The World Power Conference and its associated International Commission are notable institutions.

It is one of the achievements of our generation that business men, engineers, lawyers, social workers and other people of affairs, should meet in international assemblies not merely for promotion of the abstract sciences and techniques in which they may respectively be interested, but for exploration of the application of these to national welfare and betterment of the conditions of human life.

There are very special reasons why we in the United States prize the opportunity to provide the forum for discussion of the problems which are being presented to your Conference.

We are relatively a young nation, facing now the problems of matured national life. Many among you represent

nations of longer experience.

We have a strong conviction that any success we may have in organizing the household of this nation now come of age, will depend in large measure on the degree to which and the manner in which we make available the natural energies which have been given us in great abundance. We shall therefore study the records of your proceedings with painstaking care.

For a century population in the United States has increased, both naturally and by immigration, at an exceptional rate; but recently there has set in a decline in the rate of increase. Experts in vital statistics now calculate that we shall have reached a point of stationary population within approximately the next twenty-five years.

For two centuries the dramatic aspect of national growth was territorial expansion - successive waves from the Atlantic to the Allegheny Mountains, to the Mississippi Valley, to the prairies, to the Rocky Mountains, to the Pacific Coast. The addition of improved lands has come to a stop; in fact, in many parts we have overdone it and must restore some of them to more natural conditions.

With these have appeared other evidences of maturity. For a period following the establishment of the Union about 85 per cent of our people lived on farms; today nearly 75 per cent live in cities and villages. During our earlier years the proportion of young people in the population increased much more rapidly than the proportion of old people. Today for various reasons, the proportion of old is increasing more rapidly than the proportion of young people.

With such changes have come also changes in social habits and in points of view.

Under conditions of maturity of a nation there is, justifiably, an increasing concern on the part of nearly every citizen for his economic security. In the earlier days of our nation's youth there was no such dominating concern. As a people we could then be happy-go-lucky - a characteristic of youth.

National maturity requires that we have new points of view, and that we do some things in different ways.

This matter of economic security, I take it, is not to be achieved by aiming for restriction of national

income - real national income - but by aiming for more abundant and more widely distributed national income. A satisfying standard of living and security, for a national household of nearly 130 million people, is to be realized only by high productivity, broadly and equitably distributed, and wisely proportioned with respect to its drain on natural resources and to the variety of human wants it is destined to satisfy.

It is for such reasons that your deliberations are of significance to us, and will be followed with minute attention. Your scientific and engineering genius is destroying one world - the world of relative scarcity - but has it yet undertaken to create the new world of abundance which is potential in your command over natural energies? Is creation of greater abundance dependent on further scientific and engineering achievements so much as on suitably organizing and utilizing the engineering already incorporated into your techniques?

These two questions, more simply stated, resolve themselves into this: Are you and I paying enough attention to "human engineering?"

There are many aspects of the problem. For example, it is possible to conceive that the conversion and

application of energy, in the coming generation, will be so directed that half of the population can provide the basic machine-made products necessary for the welfare of the whole of the population. We can conceive that this would mean that the people between 20 and 30 years of age will be able to produce the basic commodities for themselves and also for all others below and above those ages.

If that condition should arise, it is the duty of you who would be so greatly responsible for it to think what would be the effect on our leisure, our culture and our way of life. I would suggest that the answer should not be left solely in the hands of bankers, government officials or demagogues.

In anticipation of all manner of possibilities and simultaneously with the study of their far-reaching results, we can and must take every preparatory step now within our power.

Fundamental among these is conservation of resources; their evaluation in terms of the services they may render, including the conditions under which these may be rendered, and their utilization in the light of such

evaluation. Although it is a principle of physics that energy cannot be destroyed, it has been revealed by experience that man can destroy those particular forms of energy in which energy is usable by him. In such an evaluation the physical and mental energies of human beings must be included with coal, petroleum, gas, electricity and other forms.

To make such an evaluation, a higher form of accounting than any yet developed by commerce and industry appears to be essential. It must be a form of accounting that takes social values, now left to mere assumption, into its calculations and measures them. If a nation were to establish in its social balance sheet a capital account for its energy assets, and were to charge against that account the water it permits to go unused, as well as the coal and oil that are used; or if the petroleum industry were charged with the gas it permits to go to waste - a quantity that is enormous in the United States; then perhaps all citizens would perceive that public policy and private conduct in respect of natural resources should be quite different from what they now are.

It seems to me, a layman, that the outstanding gift of modern science and engineering to society is greater knowledge of the characteristics of electric energy, together with a very substantial degree of command over it. Its flexibility is what makes it impressive; its transportability; its divisibility. The invention and adaptation to use of the steam engine was a great event in human history. It caused an industrial revolution; it remade the world. It created new social-industrial problems many of which are still far from solution. It is not irrational to believe that in our command over electric energy a corresponding industrial and social revolution is potential; that it may already be under way without our perceiving it.

One of the social changes brought on by the invention and use of the steam engine was the concentration of workers into large factories and of people into large cities. We have not known what to do about it. Workers had to go to the steam engine, whose energy could not be divided into parts and sent out to them.

Now we have electric energy which can be and

often is produced in places away from where fabrication of usable goods is carried on. But by habit we continue to carry this flexible energy in great blocks into the same great factories, and continue to carry on our production there. Sheer inertia has caused us to neglect formulating a public policy that would promote opportunity for people to take advantage of the flexibility of electric energy; that would send it out wherever and whenever wanted at the lowest possible cost. We are continuing the forms of over-centralization of industry caused by the characteristics of the steam engine, long after we have had technically available a form of energy which should promote decentralization of industry. What is economically sound is to be determined by social accounting more than by present methods.

I had occasion recently to visit the Great Plains area of the United States where the greatest drought in history has thrown an oppressive burden upon the people of those states. In planning for the better use of those millions of acres, power is a factor of vital importance - power to be used primarily for the conserving of the water supply - power,

the application of which is essential not only to the cities but to the farms and ranches of that whole area.

I speak of power in its many forms. It may be true, as I understand some of the authorities among you prophesy, that the world's oil reserves, because of their limited supply some day may have to be apportioned to specific uses. It may be true that new applications of alcohol, processed from the products of the soil, may increase the usefulness of the internal combustion engine; but in any event it seems most probable that a greater use of electrical energy is absolutely essential in every sector, rural as well as urban, in the United States and, indeed, in the whole world.

A sound and courageous public policy will lead towards its consummation.

One who considers the matter with forthright vision cannot convince himself that public policy for promotion of availability of electric energy can really harm the electric industry that exists today. It would give opportunity for that industry to add to achievements already great. The more integrated its sources of energy, the less it would require of

excess capacity and the lower would be its costs. The broader the base of consumers of a product that is now classed as a necessity, the lower would be its costs and the greater its stability. Years ago Steinmetz observed that electricity is expensive because it is not widely used, and it is not widely used because it is expensive. Notwithstanding reductions in rates and increase of consumption since his day - which, by the way, have demonstrated the truth of his words - that observation still holds true. There is a vicious circle which must be broken, and wise public policy will help to break it.

I still hold to the belief of two years ago, when I spoke as follows:

"We are going to see, I believe, with our own eyes electricity and power made so cheap that they will become a standard article of use, not only for agriculture and manufacturing, but also for every home within reach of an electric light line.

"The experience of those sections of the world that have cheap power proves very conclusively that the cheaper the power the more of it is used."

These words were spoken at Grand Coulee. The

Government of the United States has promoted the construction

of several great reservoirs, which you will inspect on your grand tour, primarily for navigation or reclamation, but with incidental values for flood control and the regulation of stream flow. Among other incidental values is the generation of electric power. This may prove to be the force that breaks the vicious circle to which I have referred. If these are not sufficient, the influence of additional meritorious projects awaiting development can be added.

Two great dams of the Tennessee Valley Authority have been completed and are making their contribution to the public weal. Grand Coulee is far enough along to enlist your interest, as also is Bonneville. At Boulder Dam on the mighty Colorado the gates were closed months ago; a great lake has come into being behind the dam; generating equipment has been installed in the power plant; and at this moment the powerful turbines are awaiting the relatively tiny impulse of electric current which will flow from the touch of my hand on the button which you see

before me on the desk, to stir them to life and creative  
activity.

-----

Boulder Dam; in the name of the people of the  
United States, to whom you are a symbol of greater things in  
the future; in the honored presence of guests from many  
nations; I call you to life!

-----

7-11-26

FOR THE PRESIDENT:

Suggestions submitted by Frank R. McNinch for Address to  
Third World Power Conference and Second Congress on  
Large Dams, Washington, September 11, 1936.

(No concrete suggestions are made for welcoming the Conference and the Congress. You may want to develop further, in connection with your words of welcome, the Good Neighbor idea found in the last paragraph of this draft. It seems to me practicable and perhaps desirable to extend the thought that such an international cooperative gathering, relative to such a vital, social and humanizing agency as electricity, should contribute very directly toward the better understanding between nations, and improvement of their social and economic life, a lifting of some of the causes of unrest, and thus contribute toward world peace.

You will recall sending the Chairman of the Federal Power Commission to the Hague, July, 1935, to extend invitation on your behalf to International Executive Council of World Power Conference. Later, at Paris, he also invited the Congress on Large Dams.)

*Frank R. McNinch* (56) The World Power Conference, comprising public officials and leading engineers, economists, scientists, executives, industrialists, and others specially interested in electrical power, coming together from fifty nations, is impressive evidence of the world-wide recognition of electricity as one of the most vital agencies of Twentieth Century civilization. Your program focuses attention upon the social and economic aspects of power and thus gives just emphasis to its importance not only to the comfort, the convenience, and the economic necessities of the peoples, but even their national security and well-being. Your conference with its frank exchange of ideas and experience will undoubtedly make important contributions toward the solution of problems that are common to all countries in their efforts to further extend the benefits of electricity to their people.

We in the United States are rapidly coming to a fuller realization of the social significance of this business of producing and distributing electric power. We are coming to understand that those engaged in this business are rendering a necessary public service regardless of the public or private character of the agency engaged in the business. Our highest American Court said in a notable case, "No matter who is the agent, the function performed is that of the State. Although the ownership is private, the use is public."<sup>1</sup>

1) *Wilhem v. Moffat Tunnel Dist.*, 262 U.S. 710, at 719 (1923).

The acceptance of this view seems to me to be an essential condition to the successful solution of many of the most perplexing problems with which we are confronted in the electric field. For only as we realize and put into practice the fact that a public utility, regardless of the character of its ownership, is performing a function of the State and rendering a public service will the public interest be assured of primary consideration.

If we are correct in our appraisement of the importance of electric energy to modern life and that its generation and distribution is affected with the public interest, then it follows that a fully adequate supply of electric energy at the lowest economic cost consistent with this principle should be regarded as a desirable and proper social objective. That objective has probably not been fully achieved by any nation thus far. Certainly it has not been completely realized in the United States, much as we may justly claim progress toward that goal. The limited use of electric power in many countries is indicated by the fact that the Foreign Commerce Yearbook of 1935 lists three countries in which the per capita output of electricity in 1933 was less than 100 kilowatt-hours. In ten other countries, not one shows a per capita output of 500 kilowatt-hours, while some show an output of about one-half that amount. On the other hand as a challenge to all other countries, including the United States, we are reminded that in four countries<sup>2)</sup> the per capita output ranges from 860 kilowatt-hours to 2,536 kilowatt-hours. It is, of course, understood by all of us that neither social nor economic conditions are identical in any two countries, but nevertheless these wide differences in the use of electricity in the various nations indicate clearly both the possibility and the need for a much wider distribution in order that its benefits may be more largely participated in by industry, commerce, the home and the farm.

In the United States there has been a marked increase in the use of electricity by all classes of customers during the past few years, and we have been especially gratified to know that the use by residential customers has increased during the past three years from about 600 kw. hours to 700 kw. hours per year. This increase has been largely influenced by reduction in rates, some voluntarily made by the companies and others directed by public regulatory bodies. While this increase is promising, the consumption rate is still much too low and indicates a restricted use which can be and undoubtedly will be substantially increased as further economies and rate reductions are effected and distribution lines are extended.

A fact which arrests the attention of all who are concerned with the wider distribution of electric service is that in most countries this service is available to only a small percentage of

2) Sweden	860 kw.-hrs	
Switzerland	1,194 kw.-hrs.	The United States per capita
Canada	1,529 kw.-hrs.	output is about 678 kw. hours.
Norway	2,536 kw.-hrs.	

the rural inhabitants. The United States is, I regret to say, among the countries which have not yet made electric service generally available to our farmers. According to the latest reports by the industry, only 13.3% of farms with occupied dwellings have electric service.

In many of your countries long-range programs for rural electrification have for many years been sponsored by the Government and, through cooperation of the Government, the utilities and the farmers, have made electricity and its benefits widely available to your rural people. In this country we are just awakening to the great possibilities that an abundant use of electric power offers for the improvement of the social and economic life on the farm and we are today actively engaged in electrifying these farms. For many years thousands of farm families have vainly sought the assistance of their Government in their attempts to secure electricity, but only recently has the Government of the United States recognized its responsibility to sponsor a rural electrification program. In line with this Administration's general policy of assisting agriculture and for the improvement of rural life, the Rural Electrification Administration was set up in May, 1935, under an act of Congress, providing a ten-year program of farm electrification. One of the means to be employed to promote distribution is that of lending funds at a low rate of interest for the construction of rural lines. These lines are now being constructed for less than \$1,000 per mile, a saving to the farmer of 25 to 50% over former costs. Burdensome charges for extending rural lines are thus rapidly being abolished and rates for rural service are being reduced. Privately owned utilities have enlarged their programs of rural construction. This year some 35,000 miles of new rural lines are being built in the United States, breaking all previous records. From these new lines 100,000 rural families will receive service. From other new rural lines being built by the Rural Electrification Administration through loans for non-competing rural lines, another 80,000 families will receive electric service. The fabrication of equipment and the building and servicing of these rural lines will give needed employment to thousands of men.

Thus for the first time our farmers have an assurance of marked and continued progress in the spread of rural electrification. It is expected that two million additional farms will be electrified during the next 10 years, and these two million farm families will experience the release from drudgery and the improvement in living conditions that electricity alone can bring to a rural life.

Great progress has been made in the development of the electric industry in the United States but the most notable advances have occurred since the world war. Prior to the war, the industry was largely made up of isolated plants which electricity available to only those

who lived within a relatively small radius from the generating station. Then followed that extraordinary advance in the art which made long distance transmission feasible and economic and led directly to the coordination of facilities and operations which produced many economies.

The old isolated plant which generated and distributed electricity in the local community has been largely swallowed up in the development of great interstate power systems. Our power map today reveals high tension transmission lines, spreading their network across the political boundaries of our American States. On those lines more energy is transmitted in interstate commerce today than was generated in the entire United States in 1913. It is thus clear that electric energy is no longer local in its significance but through the genius of engineers, inventors and operators, it has become regional in the scope of its operations.

As further development proceeds, a fact of utmost importance is the planned coordination of our power resources, facilities and operations. This includes steam power as well as water power, for steam will continue to be one of the principal means of generating electricity. National planning must be on a scale that not only provides for our present needs but for our future requirements as well. In such planning, water power resources are not to be considered as separate and unrelated sources of power but as integral parts of one comprehensive national system. Coal, gas and other fuels are not to be treated as competitors with water power but as essential elements in any plan for economic and dependable power production.

Our Congress a year ago reached the conclusion that the achievement of an adequate supply of electric energy at the lowest economic cost is only attainable through such a coordination of power resources and facilities into geographically and economically integrated systems. Realizing that no power system can most profitably to itself and to society live unto itself alone, the Congress directed the Federal Power Commission, an agency of the National Government, to divide the country into the most economical regional power districts and to accomplish by voluntary cooperation of private and public agencies the necessary interconnection and coordination of facilities and resources within those districts. This policy of national planning also contemplates the coordination of power generated by fuel with that generated by water power in order that there may be realized the most economic utilization of our resources.

Sixteen years ago under the leadership of President Woodrow Wilson, the first comprehensive national power policy was established by the enactment of the Federal Water Power Act. This Act provided for the conservation and development of our natural resources of water power, and made provision for the development and operation by private interests, States and municipalities of water power in our navigable

streams or within the public domain. Under this Act, we have declared this great natural resource to be the common property of the people and have provided for the licensing and supervision of these hydro-electric projects. Such licenses carry regulatory provisions and retain the control and ultimate ownership of the resource. Where water power can most economically be developed by the Federal Government, by reason of its relation to navigation or flood control or other Federal purposes, the Act of 1920 favors Federal Development. Under the administration of the Federal Power Commission ~~now exceeds~~ of 16,000,000 horsepower has been developed by private persons, corporations and municipalities from the streams of our country, and nearly a billion dollars has been invested in these licensed power projects.

In addition to these private or municipal developments, the Federal Government itself has undertaken great developments such as the Boulder Dam, Grand Coules, Bonneville, and the Tennessee Valley projects, in all of which the development of power is incident to great navigation, irrigation and flood control purposes.

(Not knowing whether you may think it desirable to discuss Tennessee Valley Authority or any of these projects, no suggestions are submitted. Can furnish any needed data promptly.)

Because of the common interest which all of us have in making electric energy the universal and inexpensive servant of mankind, you render an important international service by coming together to take common counsel upon the ways and means by which may be achieved that desirable social and economic objective. In addition to the direct and substantial benefits which will undoubtedly flow from this Conference to many peoples, may we not cherish the hope that through this important and world-wide act of cooperation in the social and economic fields we may thereby greatly strengthen the spirit of the Good Neighbor in our international life, so essential in this modern world to the well-being of men everywhere.

FOR THE PRESIDENT:

Suggestions submitted by Frank R. McNinch for Address to  
Third World Power Conference and Second Congress on  
Large Dams, Washington, September 11, 1936.

(No concrete suggestions are made for welcoming the Conference and the Congress. You may want to develop further, in connection with your words of welcome, the Good Neighbor idea found in the last paragraph of this draft. It seems to me practicable and perhaps desirable to extend the thought that such an international cooperative gathering, relative to such a vital, social and humanizing agency as electricity, should contribute very directly toward the better understanding between nations, and improvement of their social and economic life, a lifting of some of the causes of unrest, and thus contribute toward world peace.)

You will recall sending the Chairman of the Federal Power Commission to the Hague, July, 1925, to extend invitation on your behalf to International Executive Council of World Power Conference. Later, at Paris, he also invited the Congress on Large Dams.)

The World Power Conference, comprising public officials and leading engineers, economists, scientists, executives, industrialists, and others specially interested in electrical power, coming together from fifty nations, is impressive evidence of the world-wide recognition of electricity as one of the most vital agencies of Twentieth Century civilization. Your program focuses attention upon the social and economic aspects of power and thus gives just emphasis to its importance not only to the comfort, the convenience, and the economic necessities of the peoples, but even their national security and well-being. Your conference with its frank exchange of ideas and experience will undoubtedly make important contributions toward the solution of problems that are common to all countries in their efforts to further extend the benefits of electricity to their people.

We in the United States are rapidly coming to a fuller realization of the social significance of this business of producing and distributing electric power. We are coming to understand that those engaged in this business are rendering a necessary public service regardless of the public or private character of the agency engaged in the business. Our highest American Court said in a notable case, "No matter who is the agent, the function performed is that of the State. Although the ownership is private, the use is public."<sup>1</sup>

1) *Wilhain v. Moffat Tunnel Dist.*, 262 U.S. 710, at 719 (1925).

The acceptance of this view seems to me to be an essential condition to the successful solution of many of the most perplexing problems with which we are confronted in the electric field. For only as we realize and put into practice the fact that a public utility, regardless of the character of its ownership, is performing a function of the State and rendering a public service will the public interest be assured of primary consideration.

If we are correct in our appraisement of the importance of electric energy to modern life and that its generation and distribution is affected with the public interest, then it follows that a fully adequate supply of electric energy at the lowest economic cost consistent with this principle should be regarded as a desirable and proper social objective. That objective has probably not been fully achieved by any nation thus far. Certainly it has not been completely realized in the United States, much as we may justly claim progress toward that goal. The limited use of electric power in many countries is indicated by the fact that the Foreign Commerce Year-book of 1935 lists three countries in which the per capita output of electricity in 1933 was less than 100 kilowatt-hours. In ten other countries, not one shows a per capita output of 500 kilowatt-hours, while some show an output of about one-half that amount. On the other hand as a challenge to all other countries, including the United States, we are reminded that in four countries the per capita output ranges from 860 kilowatt-hours to 2,536 kilowatt-hours. It is, of course, understood by all of us that neither social nor economic conditions are identical in any two countries, but nevertheless these wide differences in the use of electricity in the various nations indicate clearly both the possibility and the need for a much wider distribution in order that its benefits may be more largely participated in by industry, commerce, the home and the farm.

In the United States there has been a marked increase in the use of electricity by all classes of customers during the past few years, and we have been especially gratified to know that the use by residential customers has increased during the past three years from about 600 kw. hours to 700 kw. hours per year. This increase has been largely influenced by reduction in rates, some voluntarily made by the companies and others directed by public regulatory bodies. While this increase is promising, the consumption rate is still much too low and indicates a restricted use which can be and undoubtedly will be substantially increased as further economies and rate reductions are effected and distribution lines are extended.

A fact which arrests the attention of all who are concerned with the wider distribution of electric service is that in most countries this service is available to only a small percentage of

2) Sweden	860 kw.-hrs	
Switzerland	1,194 kw.-hrs.	The United States per capita
Canada	1,529 kw.-hrs.	
Norway	2,536 kw.-hrs.	output is about 578 kw. hours.

the rural inhabitants. The United States is, I regret to say, among the countries which have not yet made electric service generally available to our farmers. According to the latest reports by the industry, only 13.3% of farms with occupied dwellings have electric service.

In many of your countries long-range programs for rural electrification have for many years been sponsored by the Government and, through cooperation of the Government, the utilities and the farmers, have made electricity and its benefits widely available to your rural people. In this country we are just awaking to the great possibilities that an abundant use of electric power offers for the improvement of the social and economic life on the farm and we are today actively engaged in electrifying these farms. For many years thousands of farm families have vainly sought the assistance of their Government in their attempts to secure electricity, but only recently has the Government of the United States recognized its responsibility to sponsor a rural electrification program. In line with this Administration's general policy of assisting agriculture and for the improvement of rural life, the Rural Electrification Administration was set up in May, 1935, under an act of Congress, providing a ten-year program of farm electrification. One of the means to be employed to promote distribution is that of lending funds at a low rate of interest for the construction of rural lines. These lines are now being constructed for less than \$1,000 per mile, a saving to the farmer of 25 to 50% over former costs. Burdensome charges for extending rural lines are thus rapidly being abolished and rates for rural service are being reduced. Privately owned utilities have enlarged their programs of rural construction. This year some 35,000 miles of new rural lines are being built in the United States, breaking all previous records. From these new lines 100,000 rural families will receive service. From other new rural lines being built by the Rural Electrification Administration through loans for non-competing rural lines, another 80,000 families will receive electric service. The fabrication of equipment and the building and servicing of these rural lines will give needed employment to thousands of men.

Thus for the first time our farmers have an assurance of marked and continued progress in the spread of rural electrification. It is expected that two million additional farms will be electrified during the next 10 years, and these two million farm families will experience the release from drudgery and the improvement in living conditions that electricity alone can bring to a rural life.

Great progress has been made in the development of the electric industry in the United States but the most notable advances have occurred since the world war. Prior to the war, the industry was largely made up of isolated plants which electricity available to only those

Made

who lived within a relatively small radius from the generating station. Then followed that extraordinary advance in the art which made long distance transmission feasible and economic and led directly to the coordination of facilities and operations which produced many economies.

The old isolated plant which generated and distributed electricity in the local community has been largely swallowed up in the development of great interstate power systems. Our power map today reveals high tension transmission lines, spreading their network across the political boundaries of our American States. On those lines more energy is transmitted in interstate commerce today than was generated in the entire United States in 1913. It is thus clear that electric energy is no longer local in its significance but through the genius of engineers, inventors and operators, it has become regional in the scope of its operations.

As further development proceeds, a fact of utmost importance is the planned coordination of our power resources, facilities and operations. This includes steam power as well as water power for steam will continue to be one of the principal means of generating electricity. National planning must be on a scale that not only provides for our present needs but for our future requirements as well. In such planning, water power resources are not to be considered as separate and unrelated sources of power but as integral parts of one comprehensive national system. Coal, gas and other fuels are not to be treated as competitors with water power but as essential elements in any plan for economic and dependable power production.

Our Congress a year ago reached the conclusion that the achievement of an adequate supply of electric energy at the lowest economic cost is only attainable through such a coordination of power resources and facilities into geographically and economically integrated systems. Realizing that no power system can most profitably to itself and to society live unto itself alone, the Congress directed the Federal Power Commission, an agency of the National Government, to divide the country into the most economical regional power districts and to accomplish by voluntary cooperation of private and public agencies the necessary interconnection and coordination of facilities and resources within those districts. This policy of national planning also contemplates the coordination of power generated by fuel with that generated by water power in order that there may be realized the most economic utilization of our resources.

Sixteen years ago under the leadership of President Woodrow Wilson, the first comprehensive national power policy was established by the enactment of the Federal Water Power Act. This Act provided for the conservation and development of our natural resources of water power, and made provision for the development and operation by private interests, States and municipalities of water power in our navigable

streams or within the public domain. Under this Act, we have declared this great natural resource to be the common property of the people and have provided for the licensing and supervision of these hydro-electric projects. Such licensees carry regulatory provisions and retain the control and ultimate ownership of the resource. Where water power can most economically be developed by the Federal Government, by reason of its relation to navigation or flood control or other Federal purposes, the Act of 1930 favors Federal Development. Under the administration of the Federal Power Commission in excess of 16,000,000 horsepower has been developed by private persons, corporations and municipalities from the streams of our country, and nearly a billion dollars has been invested in these licensed power projects.

In addition to these private or municipal developments, the Federal Government itself has undertaken great developments such as the Boulder Dam, Grand Coulee, Bonneville, and the Tennessee Valley projects, in all of which the development of power is incident to great navigation, irrigation and flood control purposes.

(Not knowing whether you may think it desirable to discuss Tennessee Valley Authority or any of these projects, no suggestions are submitted. Can furnish any needed data ~~presently~~.)

Because of the common interest which all of us have in making electric energy the universal and inexpensive servant of mankind, you render an important international service by coming together to take common counsel upon the ways and means by which may be achieved that desirable social and economic objective. In addition to the direct and substantial benefits which will undoubtedly flow from this Conference to many peoples, may we not cherish the hope that through this important and world-wide act of cooperation in the social and economic fields we may thereby greatly strengthen the spirit of the Good Neighbor in our international life, so essential in this modern world to the well-being of men everywhere.

FOR THE PRESIDENT:

Suggestions submitted by Frank R. McMinsh for Address to  
Third World Power Conference and Second Congress on  
Large Dams, Washington, September 11, 1936.

(No concrete suggestions are made for welcoming the Conference and the Congress. You may want to develop further, in connection with your words of welcome, the Good Neighbor idea found in the last paragraph of this draft. It seems to me practicable and perhaps desirable to extend the thought that such an international cooperative gathering, relative to such a vital, social and humanizing agency as electricity, should contribute very directly toward the better understanding between nations, ~~and~~ improvement of their social and economic life, a lifting of some of the causes of unrest, and thus contribute toward world peace.

You will recall sending the Chairman of the Federal Power Commission to the Hague, July, 1935, to extend invitation on your behalf to International Executive Council of World Power Conference. Later, at Paris, he also invited the Congress on Large Dams.)

The World Power Conference, comprising public officials and leading engineers, economists, scientists, executives, industrialists, and others specially interested in electrical power, coming together from fifty nations, is impressive evidence of the world-wide recognition of electricity as one of the most vital agencies of Twentieth Century civilization. Your program focuses attention upon the social and economic aspects of power and thus gives just emphasis to its importance not only to the comfort, the convenience, and the economic necessities of the peoples, but even their national security and well-being. Your conference with its frank exchange of ideas and experience will undoubtedly make important contributions toward the solution of problems that are common to all countries in their efforts to further extend the benefits of electricity to their people.

We in the United States are rapidly coming to a fuller realization of the social significance of this business of producing and distributing electric power. We are coming to understand that those engaged in this business are rendering a necessary public service regardless of the public or private character of the agency engaged in the business. Our highest American Court said in a notable case, "No matter who is the agent, the function performed is that of the State. Although the ownership is private, the use is public."<sup>1</sup>

1) *Wilhain v. Heffat Tunnel Dist.*, 262 U.S. 710, at 719 (1923).

The acceptance of this view seems to me to be an essential condition to the successful solution of many of the most perplexing problems with which we are confronted in the electric field. For only as we realize and put into practice the fact that a public utility, regardless of the character of its ownership, is performing a function of the State and rendering a public service will the public interest be assured of primary consideration.

If we are correct in our appraisement of the importance of electric energy to modern life and that its generation and distribution is affected with the public interest, then it follows that a fully adequate supply of electric energy at the lowest economic cost consistent with this principle should be regarded as a desirable and proper social objective. That objective has probably not been fully achieved by any nation thus far. Certainly it has not been completely realized in the United States, much as we may justly claim progress toward that goal. The limited use of electric power in many countries is indicated by the fact that the Foreign Commerce Year-book of 1935 lists three countries in which the per capita output of electricity in 1933 was less than 100 kilowatt-hours. In ten other countries, not one shows a per capita output of 500 kilowatt-hours, while some show an output of about one-half that amount. On the other hand as a challenge to all other countries, including the United States, we are reminded that in four countries<sup>2)</sup> the per capita output ranges from 860 kilowatt-hours to 2,536 kilowatt-hours. It is, of course, understood by all of us that neither social nor economic conditions are identical in any two countries, but nevertheless these wide differences in the use of electricity in the various nations indicate clearly both the possibility and the need for a much wider distribution in order that its benefits may be more largely participated in by industry, commerce, the home and the farm.

In the United States there has been a marked increase in the use of electricity by all classes of customers during the past few years, and we have been especially gratified to know that the use by residential customers has increased during the past three years from about 600 kw. hours to 700 kw. hours per year. This increase has been largely influenced by reduction in rates, some voluntarily made by the companies and others directed by public regulatory bodies. While this increase is promising, the consumption rate is still much too low and indicates a restricted use which can be and undoubtedly will be substantially increased as further economies and rate reductions are effected and distribution lines are extended.

A fact which arrests the attention of all who are concerned with the wider distribution of electric service is that in most countries this service is available to only a small percentage of

2) Sweden	860 kw.-hrs	
Switzerland	1,184 kw.-hrs.	
Omanada	1,629 kw.-hrs.	The United States per capita
Norway	2,536 kw.-hrs.	output is about 678 kw. hours.

the rural inhabitants. The United States is, I regret to say, among the countries which have not yet made electric service generally available to our farmers. According to the latest reports by the industry, only 15.2% of farms with occupied dwellings have electric service.

In many of your countries long-range programs for rural electrification have for many years been sponsored by the Government and, through cooperation of the Government, the utilities and the farmers, have made electricity and its benefits widely available to your rural people. In this country we are just awakening to the great possibilities that an abundant use of electric power offers for the improvement of the social and economic life on the farm and we are today actively engaged in electrifying these farms. For many years thousands of farm families have vainly sought the assistance of their Government in their attempts to secure electricity, but only recently has the Government of the United States recognised its responsibility to sponsor a rural electrification program. In line with this Administration's general policy of assisting agriculture and for the improvement of rural life, the Rural Electrification Administration was set up in May, 1935, under an act of Congress, providing a ten-year program of farm electrification. One of the means to be employed to promote distribution is that of lending funds at a low rate of interest for the construction of rural lines. These lines are now being constructed for less than \$1,000 per mile, a saving to the farmer of 25 to 50% over former costs. Burdensome charges for extending rural lines are thus rapidly being abolished and rates for rural service are being reduced. Privately owned utilities have enlarged their programs of rural construction. This year some 35,000 miles of new rural lines are being built in the United States, breaking all previous records. From these new lines 100,000 rural families will receive service. From other new rural lines being built by the Rural Electrification Administration through loans for non-competing rural lines, another 60,000 families will receive electric service. The fabrication of equipment and the building and servicing of these rural lines will give needed employment to thousands of men.

Thus for the first time our farmers have an assurance of marked and continued progress in the spread of rural electrification. It is expected that two million additional farms will be electrified during the next 10 years, and these two million farm families will experience the release from drudgery and the improvement in living conditions that electricity alone can bring to a rural life.

Great progress has been made in the development of the electric industry in the United States but the most notable advances have occurred since the world war. Prior to the war, the industry was largely made up of isolated plants which made electricity available to only those

Made

who lived within a relatively small radius from the generating station. Then followed that extraordinary advance in the art which made long distance transmission feasible and economic and led directly to the coordination of facilities and operations which produced many economies.

The old isolated plant which generated and distributed electricity in the local community has been largely swallowed up in the development of great interstate power systems. Our power map today reveals high tension transmission lines, spreading their network across the political boundaries of our American States. On those lines more energy is transmitted in interstate commerce today than was generated in the entire United States in 1913. It is thus clear that electric energy is no longer local in its significance but through the genius of engineers, inventors and operators, it has become regional in the scope of its operations.

As further development proceeds, a fact of utmost importance is the planned coordination of our power resources, facilities and operations. This includes steam power as well as water power for steam will continue to be one of the principal means of generating electricity. National planning must be on a scale that not only provides for our present needs but for our future requirements as well. In such planning, water power resources are not to be considered as separate and unrelated sources of power but as integral parts of one comprehensive national system. Coal, gas and other fuels are not to be treated as competitors with water power but as essential elements in any plan for economic and dependable power production.

Our Congress a year ago reached the conclusion that the achievement of an adequate supply of electric energy at the lowest economic cost is only attainable through such a coordination of power resources and facilities into geographically and economically integrated systems. Realizing that no power system can most profitably to itself and to society live unto itself alone, the Congress directed the Federal Power Commission, an agency of the National Government, to divide the country into the most economical regional power districts and to accomplish by voluntary cooperation of private and public agencies the necessary interconnection and coordination of facilities and resources within those districts. This policy of national planning also contemplates the coordination of power generated by fuel with that generated by water power in order that there may be realized the most economic utilization of our resources.

Sixteen years ago under the leadership of President Woodrow Wilson, the first comprehensive national power policy was established by the enactment of the Federal Water Power Act. This Act provided for the conservation and development of our natural resources of water power, and made provision for the development and operation by private interests, States and municipalities of water power in our navigable

streams or within the public domain. Under this Act, we have declared this great natural resource to be the common property of the people and have provided for the licensing and supervision of these hydro-electric projects. Such licensees carry regulatory provisions and retain the control and ultimate ownership of the resource. Where water power can most economically be developed by the Federal Government, by reason of its relation to navigation or flood control or other Federal purposes, the Act of 1930 favors Federal Development. Under the administration of the Federal Power Commission in excess of 16,000,000 horsepower has been developed by private persons, corporations and municipalities from the streams of our country, and nearly a billion dollars has been invested in these licensed power projects.

In addition to these private or municipal developments, the Federal Government itself has undertaken great developments such as the Boulder Dam, Grand Coulee, Bonneville, and the Tennessee Valley projects, in all of which the development of power is incident to great navigation, irrigation and flood control purposes.

(Not knowing whether you may think it desirable to discuss Tennessee Valley Authority or any of these projects, no suggestions are submitted. Can furnish any needed data personally.)

Because of the common interest which all of us have in making electric energy the universal and inexpensive servant of mankind, you render an important international service by coming together to take common counsel upon the ways and means by which may be achieved that desirable social and economic objective. In addition to the direct and substantial benefits which will undoubtedly flow from this Conference to many peoples, may we not cherish the hope that through this important and world-wide act of cooperation in the social and economic fields we may thereby greatly strengthen the spirit of the Good Neighbor in our international life, so essential in this modern world to the well-being of men everywhere.

FOR THE PRESIDENT:

Suggestions submitted by Frank R. McNinch for Address to  
Third World Power Conference and Second Congress on  
Large Dams, Washington, September 11, 1936.

(No concrete suggestions are made for welcoming the Conference and the Congress. You may want to develop further, in connection with your words of welcome, the Good Neighbor idea found in the last paragraph of this draft. It seems to me practicable and perhaps desirable to extend the thought that such an international cooperative gathering, relative to such a vital, social and humanizing agency as electricity, should contribute very directly toward the better understanding between nations, and improvement of their social and economic life, a lifting of some of the causes of unrest, and thus contribute toward world peace.

You will recall sending the Chairman of the Federal Power Commission to the Hague, July, 1935, to extend invitation on your behalf to International Executive Council of World Power Conference. Later, at Paris, he also invited the Congress on Large Dams.)

The World Power Conference, comprising public officials and leading engineers, economists, scientists, executives, industrialists, and others specially interested in electrical power, coming together from fifty nations, is impressive evidence of the world-wide recognition of electricity as one of the most vital agencies of Twentieth Century civilisation. Your program focuses attention upon the social and economic aspects of power and thus gives just emphasis to its importance not only to the comfort, the convenience, and the economic necessities of the peoples, but even their national security and well-being. Your conference with its frank exchange of ideas and experience will undoubtedly make important contributions toward the solution of problems that are common to all countries in their efforts to further extend the benefits of electricity to their people.

We in the United States are rapidly coming to a fuller realization of the social significance of this business of producing and distributing electric power. We are coming to understand that those engaged in this business are rendering a necessary public service regardless of the public or private character of the agency engaged in the business. Our highest American Court said in a notable case, "No matter who is the agent, the function performed is that of the State. Although the ownership is private, the use is public."<sup>1</sup>

1) *Wilhelm v. Moffat Tunnel Dist.*, 262 U.S. 710, at 719 (1923).

The acceptance of this view seems to me to be an essential condition to the successful solution of many of the most perplexing problems with which we are confronted in the electric field. For only as we realize and put into practice the fact that a public utility, regardless of the character of its ownership, is performing a function of the State and rendering a public service will the public interest be assured of primary consideration.

If we are correct in our appraisement of the importance of electric energy to modern life and that its generation and distribution is affected with the public interest, then it follows that a fully adequate supply of electric energy at the lowest economic cost consistent with this principle should be regarded as a desirable and proper social objective. That objective has probably not been fully achieved by any nation thus far. Certainly it has not been completely realized in the United States, much as we may justly claim progress toward that goal. The limited use of electric power in many countries is indicated by the fact that the Foreign Commerce Yearbook of 1935 lists three countries in which the per capita output of electricity in 1933 was less than 100 kilowatt-hours. In ten other countries, not one shows a per capita output of 500 kilowatt-hours, while some show an output of about one-half that amount. On the other hand as a challenge to all other countries, including the United States, we are reminded that in four countries<sup>2)</sup> the per capita output ranges from 880 kilowatt-hours to 2,536 kilowatt-hours. It is, of course, understood by all of us that neither social nor economic conditions are identical in any two countries, but nevertheless these wide differences in the use of electricity in the various nations indicate clearly both the possibility and the need for a much wider distribution in order that its benefits may be more largely participated in by industry, commerce, the home and the farm.

In the United States there has been a marked increase in the use of electricity by all classes of customers during the past few years, and we have been especially gratified to know that the use by residential customers has increased during the past three years from about 600 kw. hours to 700 kw. hours per year. This increase has been largely influenced by reduction in rates, some voluntarily made by the companies and others directed by public regulatory bodies. While this increase is promising, the consumption rate is still much too low and indicates a restricted use which can be and undoubtedly will be substantially increased as further economies and rate reductions are effected and distribution lines are extended.

A fact which arrests the attention of all who are concerned with the wider distribution of electric service is that in most countries this service is available to only a small percentage of

2) Sweden	880 kw.-hrs.	
Switzerland	1,194 kw.-hrs.	The United States per capita
Canada	1,629 kw.-hrs.	output is about 678 kw. hours.
Norway	2,536 kw.-hrs.	

the rural inhabitants. The United States is, I regret to say, among the countries which have not yet made electric service generally available to our farmers. According to the latest reports by the industry, only 15.5% of farms with occupied dwellings have electric service.

In many of your countries long-range programs for rural electrification have for many years been sponsored by the Government and, through cooperation of the Government, the utilities and the farmers, have made electricity and its benefits widely available to your rural people. In this country we are just awakening to the great possibilities that an abundant use of electric power offers for the improvement of the social and economic life on the farm and we are today actively engaged in electrifying these farms. For many years thousands of farm families have vainly sought the assistance of their Government in their attempts to secure electricity, but only recently has the Government of the United States recognized its responsibility to sponsor a rural electrification program. In line with this Administration's general policy of assisting agriculture and for the improvement of rural life, the Rural Electrification Administration was set up in May, 1935, under an act of Congress, providing a ten-year program of farm electrification. One of the means to be employed to promote distribution is that of lending funds at a low rate of interest for the construction of rural lines. These lines are now being constructed for less than \$1,000 per mile, a saving to the farmer of 25 to 50% over former costs. Burdensome charges for extending rural lines are thus rapidly being abolished and rates for rural service are being reduced. Privately owned utilities have enlarged their programs of rural construction. This year some 35,000 miles of new rural lines are being built in the United States, breaking all previous records. From these new lines 100,000 rural families will receive service. From other new rural lines being built by the Rural Electrification Administration through loans for non-competing rural lines, another 80,000 families will receive electric service. The fabrication of equipment and the building and servicing of these rural lines will give needed employment to thousands of men.

Thus for the first time our farmers have an assurance of marked and continued progress in the spread of rural electrification. It is expected that two million additional farms will be electrified during the next 10 years, and these two million farm families will experience the release from drudgery and the improvement in living conditions that electricity alone can bring to a rural life.

Great progress has been made in the development of the electric industry in the United States but the most notable advances have occurred since the world war. Prior to the war, the industry was largely made up of isolated plants which electricity available to only these

↓  
Made

who lived within a relatively small radius from the generating station. Then followed that extraordinary advance in the art which made long distance transmission feasible and economic and led directly to the coordination of facilities and operations which produced many economies.

The old isolated plant which generated and distributed electricity in the local community has been largely swallowed up in the development of great interstate power systems. Our power map today reveals high tension transmission lines, spreading their network across the political boundaries of our American States. On these lines more energy is transmitted in interstate commerce today than was generated in the entire United States in 1913. It is thus clear that electric energy is no longer local in its significance but through the genius of engineers, inventors and operators, it has become regional in the scope of its operations.

As further development proceeds, a fact of utmost importance is the planned coordination of our power resources, facilities and operations. This includes steam power as well as water power for steam will continue to be one of the principal means of generating electricity. National planning must be on a scale that not only provides for our present needs but for our future requirements as well. In such planning, water power resources are not to be considered as separate and unrelated sources of power but as integral parts of one comprehensive national system. Coal, gas and other fuels are not to be treated as competitors with water power but as essential elements in any plan for economic and dependable power production.

Our Congress a year ago reached the conclusion that the achievement of an adequate supply of electric energy at the lowest economic cost is only attainable through such a coordination of power resources and facilities into geographically and economically integrated systems. Realizing that no power system can most profitably to itself and to society live unto itself alone, the Congress directed the Federal Power Commission, an agency of the National Government, to divide the country into the most economical regional power districts and to accomplish by voluntary cooperation of private and public agencies the necessary interconnection and coordination of facilities and resources within those districts. This policy of national planning also contemplates the coordination of power generated by fuel with that generated by water power in order that there may be realized the most economic utilization of our resources.

Sixteen years ago under the leadership of President Woodrow Wilson, the first comprehensive national power policy was established by the enactment of the Federal Water Power Act. This Act provided for the conservation and development of our natural resources of water power, and made provision for the development and operation by private interests, States and municipalities of water power in our navigable

streams or within the public domain. Under this Act, we have declared this great natural resource to be the common property of the people and have provided for the licensing and supervision of these hydro-electric projects. Such licenses carry regulatory provisions and retain the control and ultimate ownership of the resource. Where water power can most economically be developed by the Federal Government, by reason of its relation to navigation or flood control or other Federal purposes, the Act of 1930 favors Federal Development. Under the administration of the Federal Power Commission ~~in excess~~ of 16,000,000 horsepower has been developed by private persons, corporations and municipalities from the streams of our country, and nearly a billion dollars has been invested in these licensed power projects.

In addition to these private or municipal developments, the Federal Government itself has undertaken great developments such as the Boulder Dam, Grand Coulee, Bonneville, and the Tennessee Valley projects, in all of which the development of power is incident to great navigation, irrigation and flood control purposes.

(Not knowing whether you may think it desirable to discuss Tennessee Valley Authority or any of these projects, no suggestions are submitted. Can furnish any needed data ~~hereinbelow~~.)

Because of the common interest which all of us have in making electric energy the universal and inexpensive servant of mankind, you render an important international service by coming together to take common counsel upon the ways and means by which may be achieved that desirable social and economic objective. In addition to the direct and substantial benefits which will undoubtedly flow from this Conference to many peoples, may we not cherish the hope that through this important and world-wide act of cooperation in the social and economic fields we may thereby greatly strengthen the spirit of the Good Neighbor in our international life, so essential in this modern world to the well-being of men everywhere.

FOR THE PRESIDENT:

Suggestions submitted by Frank R. McWinch for Address to  
Third World Power Conference and Second Congress on  
Large Dams, Washington, September 11, 1936.

(No concrete suggestions are made for welcoming the Conference and the Congress. You may want to develop further, in connection with your words of welcome, the Good Neighbor idea found in the last paragraph of this draft. It seems to me practicable and perhaps desirable to extend the thought that such an international cooperative gathering, relative to such a vital, social and humanizing agency as electricity, should contribute very directly toward the better understanding between nations, and improvement of their social and economic life, a lifting of some of the causes of unrest, and thus contribute toward world peace.)

You will recall sending the Chairman of the Federal Power Commission to the Hague, July, 1935, to extend invitation on your behalf to International Executive Council of World Power Conference. Later, at Paris, he also invited the Congress on Large Dams.)

The World Power Conference, comprising public officials and leading engineers, economists, scientists, executives, industrialists, and others specially interested in electrical power, coming together from fifty nations, is impressive evidence of the world-wide recognition of electricity as one of the most vital agencies of Twentieth Century civilization. Your program focuses attention upon the social and economic aspects of power and thus gives just emphasis to its importance not only to the comfort, the convenience, and the economic necessities of the peoples, but even their national security and well-being. Your conference with its frank exchange of ideas and experience will undoubtedly make important contributions toward the solution of problems that are common to all countries in their efforts to further extend the benefits of electricity to their people.

We in the United States are rapidly coming to a fuller realization of the social significance of this business of producing and distributing electric power. We are coming to understand that those engaged in this business are rendering a necessary public service regardless of the public or private character of the agency engaged in the business. Our highest American Court said in a notable case, "No matter who is the agent, the function performed is that of the State. Although the ownership is private, the use is public."<sup>1</sup>

1) *Wilhelm v. Moffat Tunnel Dist.*, 262 U.S. 710, at 719 (1923).

The acceptance of this view seems to me to be an essential condition to the successful solution of many of the most perplexing problems with which we are confronted in the electric field. For only as we realize and put into practice the fact that a public utility, regardless of the character of its ownership, is performing a function of the State and rendering a public service will the public interest be assured of primary consideration.

If we are correct in our appraisement of the importance of electric energy to modern life and that its generation and distribution is affected with the public interest, then it follows that a fully adequate supply of electric energy at the lowest economic cost consistent with this principle should be regarded as a desirable and proper social objective. That objective has probably not been fully achieved by any nation thus far. Certainly it has not been completely realized in the United States, much as we may justly claim progress toward that goal. The limited use of electric power in many countries is indicated by the fact that the Foreign Commerce Yearbook of 1935 lists three countries in which the per capita output of electricity in 1933 was less than 100 kilowatt-hours. In ten other countries, not one shows a per capita output of 500 kilowatt-hours, while some show an output of about one-half that amount. On the other hand as a challenge to all other countries, including the United States, we are reminded that in four countries<sup>2)</sup> the per capita output ranges from 880 kilowatt-hours to 2,836 kilowatt-hours. It is, of course, understood by all of us that neither social nor economic conditions are identical in any two countries, but nevertheless these wide differences in the use of electricity in the various nations indicate clearly both the possibility and the need for a much wider distribution in order that its benefits may be more largely participated in by industry, commerce, the home and the farm.

In the United States there has been a marked increase in the use of electricity by all classes of customers during the past few years, and we have been especially gratified to know that the use by residential customers has increased during the past three years from about 600 kw. hours to 700 kw. hours per year. This increase has been largely influenced by reduction in rates, some voluntarily made by the companies and others directed by public regulatory bodies. While this increase is promising, the consumption rate is still much too low and indicates a restricted use which can be and undoubtedly will be substantially increased as further economies and rate reductions are effected and distribution lines are extended.

A fact which arrests the attention of all who are concerned with the wider distribution of electric service is that in most countries this service is available to only a small percentage of

- |             |                |                                |
|-------------|----------------|--------------------------------|
| 2) Sweden   | 880 kw.-hrs    |                                |
| Switzerland | 1,194 kw.-hrs. | The United States per capita   |
| Canada      | 1,629 kw.-hrs. | output is about 678 kw. hours. |
| Germany     | 2,836 kw.-hrs. |                                |

the rural inhabitants. The United States is, I regret to say, among the countries which have not yet made electric service generally available to our farmers. According to the latest reports by the industry, only 15.3% of farms with occupied dwellings have electric service.

In many of your countries long-range programs for rural electrification have for many years been sponsored by the Government and, through cooperation of the Government, the utilities and the farmers, have made electricity and its benefits widely available to your rural people. In this country we are just awakening to the great possibilities that an abundant use of electric power offers for the improvement of the social and economic life on the farm and we are today actively engaged in electrifying these farms. For many years thousands of farm families have vainly sought the assistance of their Government in their attempts to secure electricity, but only recently has the Government of the United States recognized its responsibility to sponsor a rural electrification program. In line with this Administration's general policy of assisting agriculture and for the improvement of rural life, the Rural Electrification Administration was set up in May, 1935, under an act of Congress, providing a ten-year program of farm electrification. One of the means to be employed to promote distribution is that of lending funds at a low rate of interest for the construction of rural lines. These lines are now being constructed for less than \$1,000 per mile, a saving to the farmer of 25 to 50% over former costs. Burdensome charges for extending rural lines are thus rapidly being abolished and rates for rural service are being reduced. Privately owned utilities have enlarged their programs of rural construction. This year some 35,000 miles of new rural lines are being built in the United States, breaking all previous records. From these new lines 100,000 rural families will receive service. From other new rural lines being built by the Rural Electrification Administration through loans for non-competing rural lines, another 50,000 families will receive electric service. The fabrication of equipment and the building and servicing of these rural lines will give needed employment to thousands of men.

Thus for the first time our farmers have an assurance of marked and continued progress in the spread of rural electrification. It is expected that two million additional farms will be electrified during the next 10 years, and these two million farm families will experience the release from drudgery and the improvement in living conditions that electricity alone can bring to a rural life.

Great progress has been made in the development of the electric industry in the United States but the most notable advances have occurred since the world war. Prior to the war, the industry was largely made up of isolated plants which  electricity available to only those

Made

who lived within a relatively small radius from the generating station. Then followed that extraordinary advance in the art which made long distance transmission feasible and economic and led directly to the coordination of facilities and operations which produced many economies.

The old isolated plant which generated and distributed electricity in the local community has been largely swallowed up in the development of great interstate power systems. Our power map today reveals high tension transmission lines, spreading their network across the political boundaries of our American States. On those lines more energy is transmitted in interstate commerce today than was generated in the entire United States in 1915. It is thus clear that electric energy is no longer local in its significance but through the genius of engineers, inventors and operators, it has become regional in the scope of its operations.

As further development proceeds, a fact of utmost importance is the planned coordination of our power resources, facilities and operations. This includes steam power as well as water power for steam will continue to be one of the principal means of generating electricity. National planning must be on a scale that not only provides for our present needs but for our future requirements as well. In such planning, water power resources are not to be considered as separate and unrelated sources of power but as integral parts of one comprehensive national system. Coal, gas and other fuels are not to be treated as competitors with water power but as essential elements in any plan for economic and dependable power production.

Our Congress a year ago reached the conclusion that the achievement of an adequate supply of electric energy at the lowest economic cost is only attainable through such a coordination of power resources and facilities into geographically and economically integrated systems. Realizing that no power system can most profitably to itself and to society live unto itself alone, the Congress directed the Federal Power Commission, an agency of the National Government, to divide the country into the most economical regional power districts and to accomplish by voluntary cooperation of private and public agencies the necessary interconnection and coordination of facilities and resources within those districts. This policy of national planning also contemplates the coordination of power generated by fuel with that generated by water power in order that there may be realized the most economic utilization of our resources.

Sixteen years ago under the leadership of President Woodrow Wilson, the first comprehensive national power policy was established by the enactment of the Federal Water Power Act. This Act provided for the conservation and development of our natural resources of water power, and made provision for the development and operation by private interests, States and municipalities of water power in our navigable

streams or within the public domain. Under this Act, we have declared this great natural resource to be the common property of the people and have provided for the licensing and supervision of these hydro-electric projects. Such licenses carry regulatory provisions and retain the control and ultimate ownership of the resource. Where water power can most economically be developed by the Federal Government, by reason of its relation to navigation or flood control or other Federal purposes, the Act of 1930 favors Federal Development. Under the administration of the Federal Power Commission in excess of 16,000,000 horsepower has been developed by private persons, corporations and municipalities from the streams of our country, and nearly a billion dollars has been invested in these licensed power projects.

In addition to these private or municipal developments, the Federal Government itself has undertaken great developments such as the Boulder Dam, Grand Coulee, Bonneville, and the Tennessee Valley projects, in all of which the development of power is incident to great navigation, irrigation and flood control purposes.

(Not knowing whether you may think it desirable to discuss Tennessee Valley Authority or any of these projects, no suggestions are submitted. Can furnish any needed data promptly.)

Because of the common interest which all of us have in making electric energy the universal and inexpensive servant of mankind, you render an important international service by coming together to take common counsel upon the ways and means by which may be achieved that desirable social and economic objective. In addition to the direct and substantial benefits which will undoubtedly flow from this Conference to many peoples, may we not cherish the hope that through this important and world-wide act of cooperation in the social and economic fields we may thereby greatly strengthen the spirit of the Good Neighbor in our international life, so essential in this modern world to the well-being of men everywhere.