Declassified E.O. 12356 Section 3.3/NND No. 785019

ACC 320/PWU 10000/150/657 (1 OF 2) DATA FOR FINAL DIVISION)
SEPT. 1943 - SEPT

Declassified E.O. 12356 Section 3.3/NND No. 785019

(1 OF 2) DATA FOR FINAL REPORT (ELECTRICAL DIVISION)
SEPT. 1943 - SEPT. 1946

16

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FROM SEPT. 43
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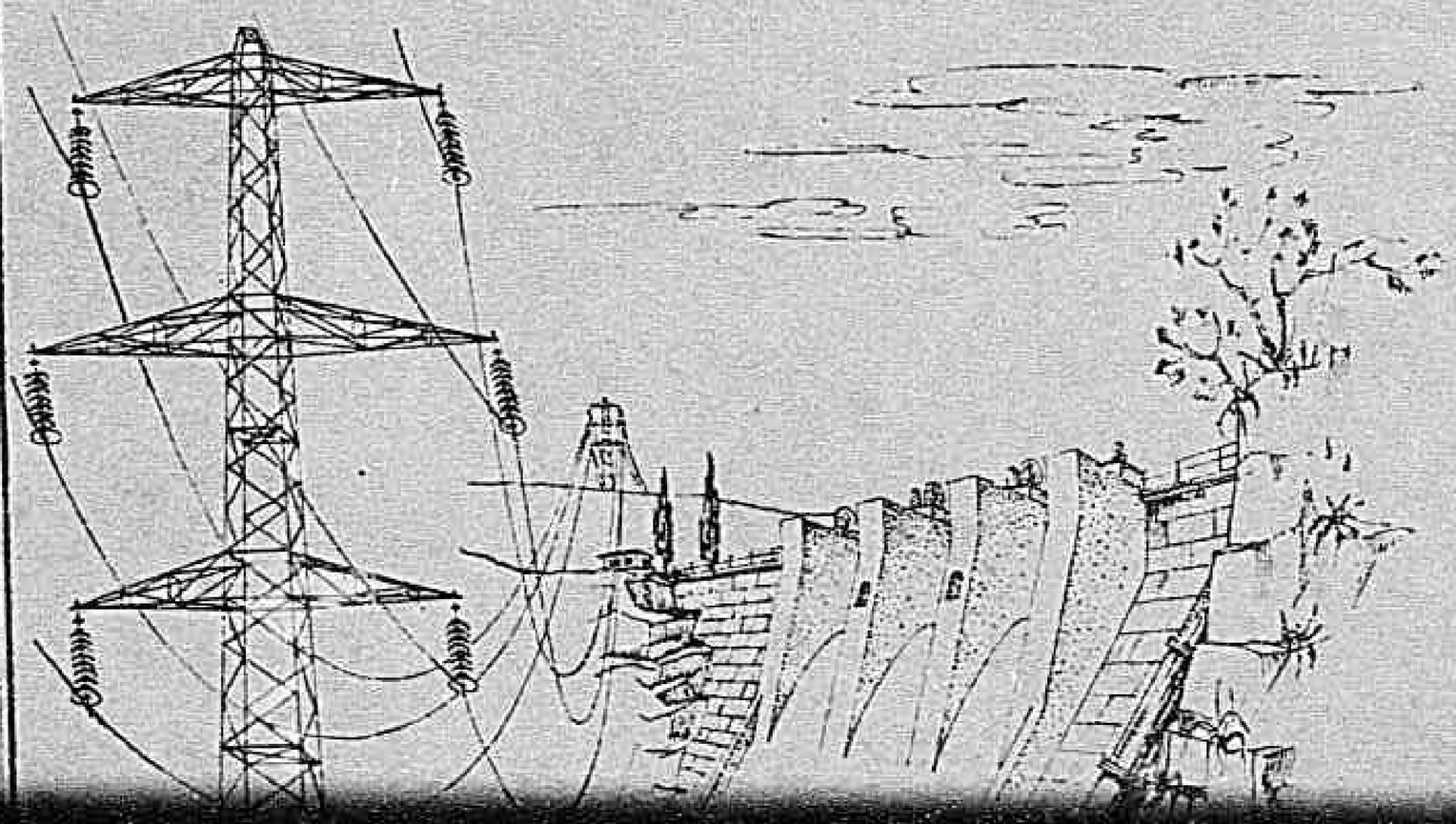
ALLIED COMMISSION

PUBLIC WORKS & UTILITIES SUB-COMMISSION

ELECTRICAL DIVISION

Historical report of the organization and activities of the Division for the period Sept. 1943 to June 1-1946.



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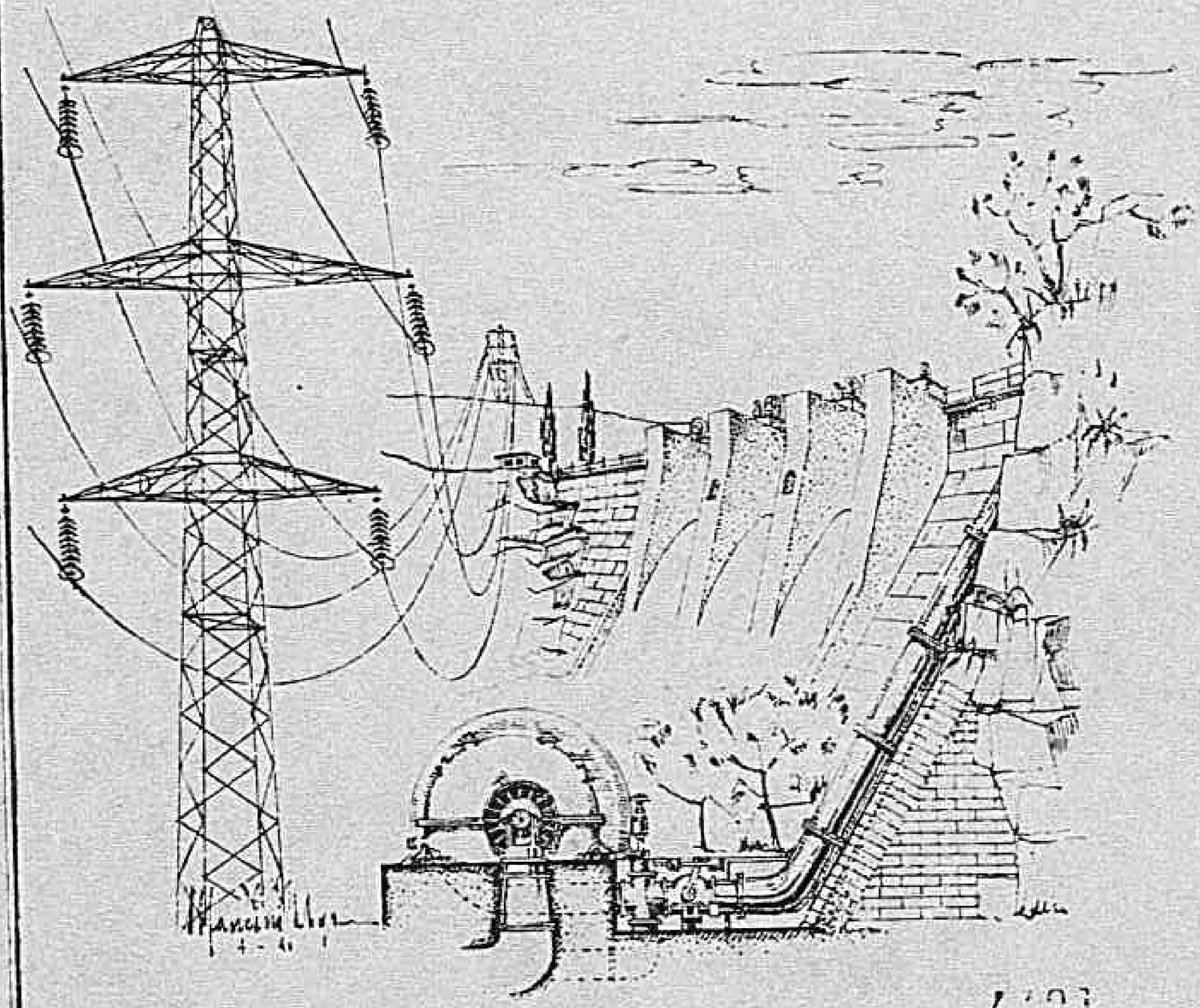

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VOLUME I
of two Volumes

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

ALLIED CONTROL

PUBLIC SAFETY & WELFARE SUB-COMMISSION

LEGISLATIVE DIVISION

Historical Report of the organization and activities of the Division for the period September 1945 to 1 June 1946.

L. H. Laughlin
L. H. LAUGHLIN
Major, O.M.C.
30 June 1946

ALLIED COMMISSION

PUBLIC SAFETY & WELFARE SUB-COMMISSION

HISTORICAL DIVISION

Historical Report of the organization and activities of the Division for the period September 1943 to 1 June 1946.

L. N. LAUGHLIN
Major, C.E.
30 June 1946

Declassified E.O. 12356 Section 3.3/NND No. 785019

I N D E X

O F

C O N T E N T S

VOLUME I - (TEXT)

	PAGE
A - INTRODUCTION SUMMARY AND RECOMMENDATIONS	i - v
I - SCOPE OF RESPONSIBILITY AND MISSION	1 - 3
II - CHRONOLOGICAL HISTORY - OUTLINE OF ELECTRICAL DIVISION	4 - 6
III - PERSONNEL	7
IV - MILAN OFFICE	8
V - REGIONAL ENGINEERS	9, 10
VI - RELATIONS WITH THE ITALIAN GOVERNMENT	11
VII - UTILITY COMPANIES	12
VIII - THE ELECTRIC POWER MISSION THE CENTRAL ELECTRICAL BOARD ELECTRICAL RECONSTRUCTION COMMITTEE (ITALY)	13, 14
IX - ELECTRIC POWER COMMITTEE (A.F.L.R.(I.) B.)	15, 16
X - ADVISORY COMMITTEES ON ELECTRIC POWER	17
XI - THE CENTRAL ITALY GRID AND THE MASTER CONTROL CENTER	18, 19
XII - FREQUENCY AND VOLTAGE STANDARDIZATION	20
XIII - EMERGENCY POWER SUPPLY FOR RGN. FROM SOUTHERN ITALY	21
XIV - REPATRIATION OF EMERGENCY POWER PLANT EQUIPMENT	22, 23

Declassified E.O. 12356 Section 3.3/NND No. 785019

VOLUME I - (TEXT) PAGE

A - INTRODUCTION SUMMARY AND RECOMMENDATIONS---------- 1 - 7

I - SCOPE OF RESPONSIBILITY AND MISSION---------- 1 - 3

II - CHRONOLOGICAL HISTORY - OUTLINE OF ELECTRICAL DIVISION 4 - 6

III - PERSONNEL---------- 7

IV - MILAN OFFICE---------- 8

V - REGIONAL ENGINEERS---------- 9, 10

VI - RELATIONS WITH THE ITALIAN GOVERNMENT---------- 11

VII - UTILITY COMPANIES---------- 12

VIII - THE ELECTRIC POWER MISSION
THE CENTRAL ELECTRICAL BOARD
ELECTRICAL RECONSTRUCTION COMMITTEE (ITALY)---------- 13, 14

IX - ELECTRIC POWER COMMITTEE (A.F.L.R.(I.)B.)---------- 15, 16

X - ADVISORY COMMITTEES ON ELECTRIC POWER ---------- 17

XI - THE CENTRAL ITALY GRID AND THE MASTER CONTROL CENTER-- 18, 19

XII - FREQUENCY AND VOLTAGE STANDARDIZATION---------- 20

XIII - EMERGENCY POWER SUPPLY FOR ROME FROM SOUTHERN ITALY--- 21

XIV - EXPORTATION OF EMERGENCY POWER PLANT EQUIPMENT-------- 22, 23

XV - EMERGENCY IMPORTATION OF POWER FROM SWITZERLAND------- 24

XVI - PARTISAN ACTIVITY - NORTH ITALY---------- 25, 26

XVII - RAINFALL AND PRECIPITATION IN ITALY---------- 27

XVIII - KWH PRODUCTION---------- 28 - 30

XIX - APPLICATIONS FOR POWER SERVICE---------- 31

XX - POWER RATIONING---------- 32 - 36

Declassified E.O. 12356 Section 3.3/NND No. 785019

VOLUME I - (TEXT)

	PAGE
XXI - UTILITY RATES - COMPANIES	37 - 39
XXII - FINANCING UTILITY WAR DAMAGE	40, 41
XXIII - SUPPLIES	42
XXIV - SALE OF POWER BETWEEN ITALY AND FRANCE	43
XXV - REHABILITATION OF ELECTRIC GENERATING PLANTS	44 - 61
XXVI - REHABILITATION OF SUB-STATION FACILITIES	62,63
XXVII - REHABILITATION OF TRANSMISSION LINES	64 - 67
XXVIII - NEW POWER GENERATING AND TRANSMISSION FACILITIES IN PROCESS OF CONSTRUCTION AND FUTURE DEVELOPMENT	68, 69
XXIX - ARTIFICIAL GAS PLANTS	70

* * * * * * * * * *

VOLUME II - (EXHIBITS)

	NO. OF PAGES
1 - A.F.H.Q. ADMINISTRATIVE MEMORANDUM NO. 58 - POWER REHABILITATION, 12 DECEMBER 1944	2
2 - A.F.H.Q. ADMINISTRATIVE MEMORANDUM NO. 32 - ELECTRIC POWER REHABILITATION, 30 MAY 1946	1
3 - LEGISLATIVE DECREE NO. 255, 5 APRIL 1946 - FREQUENCY STANDARDIZATION, CENTRAL AND SOUTHERN ITALY	2
4 - REPORT ON PRECIPITATION, ITALY - 1944-1945	2
5 - KWH PRODUCTION AND IMPORT, ITALY - 1940 to 1945	2
6 - APPLICATION FOR INDUSTRIAL POWER IN OCCUPIED ITALY, 16 DECEMBER 1944	2
7 - APPLICATION FOR ELECTRIC [illegible]	2

Declassified E.O. 12356 Section 3.3/NND No. 785019

XXIV - SALE OF POWER BETWEEN ITALY AND FRANCE---------- [illegible]

XXV - REHABILITATION OF ELECTRIC GENERATING PLANTS---------- 44 - 61

XXVI - REHABILITATION OF SUB-STATION FACILITIES---------- 62,63

XXVII - REHABILITATION OF TRANSMISSION LINES---------- 64 - 67

XXVIII - NEW POWER GENERATING AND TRANSMISSION FACILITIES IN PROCESS OF CONSTRUCTION AND FUTURE DEVELOPMENT-------- 68, 69

XXIX - ARTIFICIAL GAS PLANTS---------- 70

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VOLUME II - (EXHIBITS) — NO. OF PAGES

1 - A.F.H.Q. ADMINISTRATIVE MEMORANDUM NO. 58 - POWER REHABILITATION, 12 DECEMBER 1944---------- 2

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4 - REPORT ON PRECIPITATION, ITALY - 1944-1945---------- 2

5 - KWH PRODUCTION AND EXPORT, ITALY - 1940 to 1945------- 2

6 - APPLICATION FOR INDUSTRIAL POWER IN OCCUPIED ITALY, 16 DECEMBER 1944---------- 2

7 - APPLICATION FOR ELECTRICITY SUPPLY FOR CIVILIAN PURPOSES, ITALIAN GOVERNMENT TERRITORY, 19 MARCH 1945---------- 1

8 - GOVERNMENT DECREE NO. 95 (9 APRIL 1944) POWER RATIONING, ITALY---------- 5

9 - CONSERVATION IN USE OF ELECTRIC POWER BY MILITARY, A.F.H.Q. - 31 OCTOBER 1944---------- 2

10 - REGIONAL ORDER NO. 16 - A.M.G. LOMBARDIA, 13 DECEMBER 1945, LIMITING POWER CONSUMPTION NORTH ITALY---------- 3

11 - DECREE BY REGIONAL COMMISSIONER, NORTHERN ITALY, 15 FEBRUARY 1946 - LIMITING POWER CONSUMPTION NORTH ITALY---------- 9

Declassified E.O. 12356 Section 3.3/NND No. 785019

VOLUME II - (EXHIBITS) — NO. OF PAGES

12 - GOVERNMENT DECREE, 1 MARCH 1946 - CREATING OFFICE OF COMMISSIONER FOR CONTROL OF ELECTRIC POWER IN CENTRAL AND SOUTHERN ITALY---------- 2

13 - APPLICATION BY ELECTRIC COMPANIES FOR RATE ADJUSTMENTS AND SURCHARGES---------- 3

14 - REGIONAL ORDER NO. 17 - A.M.G. LOMBARDIA, AUTHORIZING COAL SURCHARGE ON POWER CONSUMED, NORTH ITALY---------- 2

15 - EXTRACTS FROM DECREE NO. 367, 1 NOVEMBER 1944 - FINANCING WAR DAMAGES---------- 1

16 - DECREE NO. 397, 15 NOVEMBER 1944 - FINANCING WAR DAMAGE---------- 2

17 - REHABILITATION OF POWER PLANTS (STATISTICAL DATA)------- 41

18 - REHABILITATION OF SUB-STATIONS (STATISTICAL DATA)------- 10

19 - REHABILITATION OF TRANSMISSION LINES (STATISTICAL DATA)- 8

20 - REGIONAL BOUNDARY MAP, ITALY (UNBOUND)---------- 1

21 - FREQUENCY AREA MAP, ITALY (UNBOUND)---------- 1

22 - TRANSMISSION LINE MAPS, ITALY (PLACED IN SEPARATE FOLDER)---------- 5 parts

23 - POWER PLANT MAPS, ITALY (PLACED IN SEPARATE FOLDER)----- 4 parts

Declassified E.O. 12356 Section 3.3/NND No. 785019

A - INTRODUCTION, SUMMARY AND RECOMMENDATIONS

I - INTRODUCTION

The phrase "total war" was truly applicable to the Utility Industry of Italy since nearly every line of endeavor in the economy of the country depended upon this service directly as power or on the products which come from the use of power. When the electricity supplies were put out of commission, to the extent which was done by the war in large sections of the country, the results were that many normal pursuits had to stop or be drastically curtailed. The problems arising from the war have never before confronted utility operators, but the accomplishments do demonstrate what coordinated effort can achieve in one phase of a global conflict.

There are few countries in the world, with the exception of Switzerland, where hydroelectric power has been developed to the extent which obtains in Italy. Primary reasons for this are:

a. Favorable topographical and hydrological conditions.
b. Shortage of natural fuels such as coal, oil and gas.

The result is that the entire economy of the country is largely dependent on its hydroelectric power stations and high voltage transmission systems. This was recognized by the enemy, and a definite program of demolition and mining was directed at the electric power facilities of the country for the purpose of hampering the Allied war effort. The effect was that factories, railroads, food processing plants etc. were unable to operate, with resulting unemployment, requiring the importation of large quantities of food and finished products, in order:

a. To carry on military operations
b. To keep down disease and unrest amongst civilian population

This report covers the period from September 1943 to date and deals with the formation, organization, responsibility and operation of the Electrical Division of the Public Works and Utilities Sub-Commission (later Industry and Utilities Sub-Commission), Allied Commission, Italy. It discusses briefly most of the difficulties which arose and the steps taken to meet them. The report is largely historical since the problems, such as faced this Division and the utilities, can come about only as the result of total war or some other major catastrophe. It does, however, provide a basis for thought and ideas in the event that a country must prepare itself to meet the effects of a war or carry out rehabilitation after war has passed.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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The report is in two Volumes for ease of reference. Volume I, of which this section is the beginning, contains the written matter on the subjects covered. Volume II contains typewritten and map exhibits. The large maps on plants and transmission lines are placed in separate folders and are unbound in order to permit easier handling and reference.

Declassified E.O. 12356 Section 3.3/NND No. 785019

For purposes of discussion Italy is commonly divided into Southern Italy, Central Italy, Northern Italy, and the Islands of Sicily and Sardinia. These designations are used throughout the report as they coincide very closely with the boundaries of areas in which the major power companies are grouped, as shown on EXHIBIT No. 21, Volume II. In addition, these designations are commonly used by the Italians in their own discussions and reports. Consequently, a better understanding will be had if those areas and their locations are fixed in mind.

Southern Italy is considered to be that area South of a line along the North boundaries of Caserta, Benevento and Foggia Provinces.

Central Italy is considered to be that area North of the above line up to and including the North boundary of Massa, Lucca, Pistoia, Firenze, Arezzo, and Pesaro Provinces.

North Italy is considered as all territory North of the Central Italy area.

In addition, for purposes of information, there is included EXHIBIT No. 20, Volume II, which shows all the Provinces and Compartments of Italy, together with the Regional Boundaries which were used by Allied Commission throughout its existence. Roman numerals designate the Region number and the Provinces which were included in each Region.

More than 1,500 prints of EXHIBIT No. 20 were distributed to various branches of Allied Commission and Military agencies during the life of the Commission:

II - SUMMARY

A - Rehabilitation

The following three tables summarize the extent of rehabilitation which has been accomplished from the time the areas were liberated up to 31 December 1945. The dates of liberation of the areas vary with the progress of the campaign through Italy; and are set forth in more detail in the text. All percentages are based on pre-war installations.

AVAILABLE ON LIBERATION
AS A PERCENTAGE OF PRE-WAR

Declassified E.O. 12356 Section 3.3/NND No. 785019

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AVAILABLE ON LIBERATION
AS A PERCENTAGE OF PRE-WAR

	Generation	Sub-stations	Transmission Lines
Sardinia	79%	76%	100%
Sicily	44%	84%	62%
Southern Italy	42%	53%	63%
Central Italy	11%	20%	11%
Northern Italy	88%	88%	65%
Italian State Railways	57%	33%	19%
Average for all of Italy	71%	71%	48%

Declassified E.O. 12356 Section 3.3/NND No. 785019

AVAILABLE ON 31 DECEMBER 1945
AS A PERCENTAGE OF PRE-WAR

	Generation	Sub-stations	Transmission Lines
Sardinia	79%	86%	100%
Sicily	62%	91%	100%
Southern Italy	63%	65%	82%
Central Italy	41%	45%	84%
Northern Italy	95%	95%	94%
Italian State Railways	58%	36%	49%
Average for all of Italy	82%	81%	83%

The percent of rehabilitation accomplished between the date of liberation and 31 December 1945 is shown in the following table. This covers the period during which the Electrical Division was exercising direct control over the rehabilitation program.

REHABILITATION ACCOMPLISHED
BETWEEN
LIBERATION AND 31 DECEMBER 1945
AS A PERCENTAGE OF PRE-WAR

	Generation	Sub-stations	Transmission Lines
Sardinia	None	10%	None
Sicily	18%	7%	38%
Southern Italy	21%	12%	19%
Central Italy	30%	25%	73%
Northern Italy	7%	7%	29%
Italian State Railways	1%	3%	30%
Average for all of Italy	11%	10%	35%

Based on the present plans of the utility companies it is expected to have 90% of the generating plants in operation at the end of 1946, 97% at the end of 1947, and 98% at the end of 1948. Central and Southern Italy plants will be the last to be completed since those areas were the most seriously damaged. Repairs to sub-stations are keeping pace with

Declassified E.O. 12356 Section 3.3/NND No. 785019

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B - Rates

With respect to electricity, water and gas rates, the following representative percentage surcharges were in effect in March 1946 in the principal cities and areas of Italy. Charges for thermal plant operation are not included:

Declassified E.O. 12356 Section 3.3/NND No. 785019

	South Italy	Central Italy	North Italy
Electricity	350%	350%	
Water	250% (Naples)	385% (Rome)	200%
Gas	(500% (Naples	425% (Rome)	500%
	(250% (Salerno)	600% (Florence)	350%
	(200% (Bari)		

Since the above surcharges are temporary and since no change has been permitted in the basic rates, which were in effect in 1942, the utility companies and the Italian Government will have to develop a new set of basic rate tariffs for all classes of service when the monetary system of the country has become more stabilized.

C - Capital Invested

As a result of the decreased value of the lira, the capital structures of all the utility companies will have to be revised in order to reflect present conditions.

Those companies which suffered extensive damage to their plant and property systems have had to spend large sums of money on rehabilitation at costs greatly in excess of the original investment cost on much of the equipment being replaced. This will require special consideration in view of the fact that the original financing of the companies was based on the old value of the lira.

Refunding of old indebtedness and funding of new indebtedness of all companies will also require special consideration both for the investor and the utility.

No attempt has been made in this report to determine the sums of money which have been expended by the various companies on rehabilitation since the work has not yet been completed and since this was not a function of the Division.

D - Power Rationing

In view of the fact that sufficient generating capacity has not yet been restored in Central and Southern Italy, rationing will still be necessary during the fall of 1946 and the winter of 1947. By the summer of 1947 sufficient

Declassified E.O. 12356 Section 3.3/NND No. 785019

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III - RECOMMENDATIONS

A - Coal for Artificial Gas Plants

It is recommended that every effort be made to increase the allocations of coal to the artificial gas plants of Italy, in order to reduce the abnormal utility system peak loads, caused by extra electrical domestic and commercial heating and cooking. Adequate gas supplies will provide the civilian population, especially in the metropolitan areas, with adequate means for the preparation of food and for heating. In addition, the gas is needed in industrial operations and the by-products from gas production are needed in the economy of the country.

Declassified E.O. 12356 Section 3.3/NND No. 785019

B - Materials

It is also recommended that the basic materials, required by the manufacturers of electrical generating and transmission equipment, be provided in order that there will be no undue delay in the completion of the electrical rehabilitation program. These materials consist of varnishes, tapes, mica, lacquers, copper, and the rare metals used in relays, meters, instruments etc.

The United Nations Relief and Rehabilitation Administration's (U.N.R.R.A.) program has taken the above into account in its 1946 program to the maximum extent possible. Its program, however, is scheduled to terminate at the end of 1946.

Utility company engineers have expressed the opinion that many transformer and generator units in Central and Southern Italy have been weakened from overloading. This will call for accelerated replacements or rewinding as time goes on.

IV - ACKNOWLEDGMENTS

The Electrical Division wishes to acknowledge the valuable assistance and help given by the Inspector General's Office for Electricity, Water and Gas, of the Ministry of Public Works, and the utility companies in furnishing the information and data, which were used as the basis for compiling the statistics, in this report on the damage and progress of rehabilitation under the headings of generating plants, sub-stations and transmission lines.

It is desired to make special mention of the engineers of the utility companies who, by their diligence and hard work under difficult circumstances, have been largely responsible for carrying out the actual work of rehabilitation of the damaged electrical power facilities and the resulting contribution toward the successful conclusion of the war in Italy.

V - BASIC DATA AND MAPS

The basic data supplied by the utility companies on rehabilitation and the original tracings of exhibits and blue prints used, in the preparation of this report, are a part of the permanent records of Allied Commission and are archived under "Data for Final Report, Electrical Division, file 320/PWU."

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

I - SCOPE OF RESPONSIBILITY AND MISSION

The Electrical Division of the Sub-Commission was charged with the overall program of conserving and restoring electric power resources of Italy, keeping in mind at all times the military situation. Hence, close relations were maintained with all Allied military agencies and units who performed first-aid work in the first and second phases of operations.

The Electrical Division was operated with two main objectives of Military Government in mind:

I. Military necessity

(a) This meant that military requirements were the first consideration.

II. Welfare of the civilian population

(b) This referred to the alleviation of disease and the suppression of unrest which required that electric power be made available to essential civilian needs as the second order of priority.

Long term planning was never a function of the Electrical Division.

The Electrical Division of Public Works and Utilities Sub-Commission was charged with the responsibility for the electric power supply through the operation of undamaged electric facilities, and the rehabilitation of generation and transmission facilities destroyed as a result of enemy demolition and combat operations.

Initially the electric power supply was made available to meet military and essential civilian needs and was rationed in accordance with these requirements.

The military requirements for electricity were many, and varied from railway and steel mill operation, through the range of repair workshops and military hospitals, to offices and billets. Essential civilian requirements included water pumping, communications, food processing establishments and civilian hospitals.

The work of restoring essential electrical services was done by [illegible] and Allied Military

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Initially the electric power supply was made available to meet military and essential civilian needs and was rationed in accordance with these requirements.

The military requirements for electricity were many, and varied from railway and steel mill operation, through the range of repair workshops and military hospitals, to offices and billets. Essential civilian requirements included water pumping, communications, food processing establishments and civilian hospitals.

The work of restoring essential electrical services was done by Allied military units, the Allied Commission, and Allied Military Government Units, all of which worked with the electric companies. As the Allied Armies advanced, the earliest emergency rehabilitation work was undertaken by engineer units with the armies.

The rehabilitation program was based on and carried out by utilizing local Italian resources and personnel and with a minimum of import material required in the early stages of the Italian campaign.

After formation of the "Electrical Reconstruction Committee", discussed elsewhere in this report, Allied Force Headquarters delegated to the Allied Commission the responsibility for supervising the

Declassified E.O. 12356 Section 3.3/NND No. 785019

rehabilitation of civilian electric facilities, and since that time the Electrical Division of the Public Works and Utilities Sub-Commission has:

(a) Served as liaison between military units and the civilian electric companies, avoiding the confusion which would arise if each military unit made separate demands on the electric companies.

(b) Supervised preparation of plans by civilian electric companies for the restoration of service to points most needing electricity.

(c) Supervised operations of electric systems to extent of insuring that essential military and civilian electrical needs were met.

(d) Assisted in obtaining repair materials and supplies for the electric companies from military and Italian sources, in order that the minimum essential services could be restored and maintained.

(e) Advised the Local Resources (Italian) Board on the availability of electric power supplies in order that the Board could make the proper allocations.

The functions mentioned in the foregoing were performed under the direction of the Chief Electrical Division, Public Works and Utilities Sub-Commission. The rehabilitation work was followed by officers in the field, reporting to the Electrical Division.

Consistent with the policy for turning over to the Italian Government activities carried out by the Allied Commission, the Electrical Division, throughout its life, had as its objective the return of all control to the Government as rapidly as it was able to assume the responsibility. In the later stages, the Electrical Division was acting in an advisory capacity generally as follows:

(a) Advised the Ministry of Public Works (Italian Government) in appointing permanent chairmen of all Advisory Committees on Electric Power, and met with these Committees, when con-

Declassified E.O. 12356 Section 3.3/NND No. 785019

(b) Supervised preparation of plans by civilian electric companies for the restoration of service to points most needing electricity.

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(a) Advised the Ministry of Public Works (Italian Government) in appointing permanent chairman of all Advisory Committees on Electric Power, and met with these Committees, when considered appropriate.

(b) Assisted the Ministry of Public Works in securing supplies and material necessary for continuing the public utility rehabilitation program, especially in Southern and Central Italy where the electricity supply was critical.

(c) Turned over to and advised the Government on matters relating to utility rate changes.

(d) Maintained liaison between the electric companies and the Allied military agencies in Italy to insure that military requirements for power were met and maintained.

(e) Assisted the electric companies in recovering material and equipment which was taken away by the enemy.

Declassified E.O. 12356 Section 3.3/NND No. 785019

(f) Advised the Ministry of Public Works in setting up an organization suitable to take over and carry on the work of the Electrical Division of Public Works and Utilities Sub-Commission, and to further the development of electricity supply, and effect a more economical utilization of electrical energy.

(g) Assisted the Italian Government in preparing and establishing emergency electricity rationing and control measures throughout Italy.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

II - CHRONOLOGICAL HISTORY - OUTLINE OF THE ELECTRICAL DIVISION

In September of 1943, Public Works and Utilities Sub-Commission was created in North Africa, from where Headquarters was moved to Palermo, Sicily, in October and November 1943. There it remained until the end of the year, when it was transferred to Naples, Italy. Towards the end of 1943 the Electrical Division was created as one of the two divisions of the Sub-Commission. In July of 1944 Headquarters moved to Rome. On 1 November 1945, Public Works and Utilities Sub-Commission was dissolved and Public Works Department was incorporated into Industry and Utilities Sub-Commission. On 1 March 1946 another reorganization took place within the Economic Section of Allied Commission, at which time the Sub-Commission became the Industry and Utilities Branch, which included the Utilities Division.

A total of about 33 months are thus covered, and may be divided into four parts as follows:

1. September - December 1943: Formative.
2. January - March 1944: Organizational and Operational
3. April 1944 - December 1945: Operational and Advisory
4. January 1946 - to date of this report: Advisory and closing.

The March-April 1944 period is more or less arbitrary, and the periods overlap to some extent.

The formative, or preliminary period, was spent in Algeria (North Africa) and at Palermo; the second was spent at Naples; and the third and fourth at Naples and Rome.

The nucleus of the Sub-Commission had been formed in Algeria at Tizzi-Ouzou in September 1943, and a period of about a month was spent in so-called "Planning". Without knowing the extent and nature of the damage, at first hand, no precise reconstruction or rehabilitation could be planned. The Director made a short inspection tour in Sicily, returning again to North Africa. Towards the end of October 1943 an advance party reached Palermo, followed by the remainder of the division in the first week of November.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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During the first period, with the exception of Sicily, the various Regions as such did not exist, and contact with Engineer Officers working in Sardinia, and on the mainland as far north as Naples scarcely existed, save that there were a few direct dealings with officers stationed in Sicily.

In the second period contacts extended widely, coincidentally with frequent meetings with American and British engineer officers of Allied military agencies for the purpose of determining high level policies. Such meetings were, at that time, exclusively directed to the taking over of engineering tasks from Military Districts Nos. 1, 2 and 3 (line of communication), from the Chief Engineer, Peninsular Base Section, and later from the Chief Engineer, Fifth Army.

Dual Organization (Public Works and Electrical)

The operational period thus begun was steadily consolidated and developed through the remaining months of the year. At intervals.

Declassified E.O. 12356 Section 3.3/NND No. 785019

there were meetings of all the Regional Engineers, one at Naples and others in Rome, at which time problems were discussed, and uniform policies established. One of the latter was decentralization to the maximum extent, placing on Regional Engineers responsibility for every kind of activity in their respective Regions, ranging from ports, power stations and pumping stations, to highways, bridges, buildings and electric power.

During the months June to December 1944 practical experience showed that though decentralization and local responsibility were very effective, it was in most undertakings unworkable as regards electric power, its generation, allocation, distribution and coordinated plant and transmission system rehabilitation program. In Sardinia war damage to power stations had been negligible, largely because the Germans had to leave the Island hurriedly. In Sicily there was greater damage, proportionate to the longer period the enemy had available.

Much the same applied to Southern Italy where, though damage and demolition were extensive in the vicinity of Naples, the enemy had left intact, possibly by an oversight, the large Sila hydroelectric plants in Calabria. In Central Italy, this meaning roughly the area from North of Naples up to and including Florence, enemy destruction amounted to well over 90% of all generating facilities, both thermal and hydroelectric. Damage to transmission lines was also heavy. A very large program of repairs and reconstruction was begun, controlled by the Electrical Division of the Sub-Commission, and it became increasingly clear that a centralized control was imperative.

Energy generated had to be transmitted more and more over greater distances, on a single coordinated plan of (a) power availability and (b) transmission network. Thus, the idea that Regional Engineers would have the main responsibility for electric power proved unworkable, and personnel engaged on this vast problem, vital to the prosecution of the war, to railways and transport, to the industrial life of Italy and to the daily life of its population, had to be increasingly concentrated at the Headquarters of the Sub-Commission. This meant the making of much longer journeys with inevitable loss of time, but the problem was neither Provincial nor Regional, but in every sense National. Toward the end of December 1944 steps were in hand to establish the Central Italy Grid under a Master control which is discussed elsewhere in this report.

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Declassified E.O. 12356 Section 3.3/NND No. 785019

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It was decided that the rehabilitation of all power plants and all transmission lines and sub-stations of 30,000 volts and above would be the responsibility of the Electrical Division of the Sub-Commission; transmission lines below 30,000 volts and distribution systems as well as the local operating problems of the utility companies would be under the direct supervision of the Regional Engineers.

The damage to power plant generating equipment was so great in Central Italy that all the utility companies were competing for the use of the available steel works, foundaries and machine shops. These were confined to the Terni works, the M.A.T.E.R. works in Rome, the Naval Mechanica and the Corradini in Naples. It was therefore necessary to

Declassified E.O. 12356 Section 3.3/NND No. 785019

set up a schedule of priority for plants to be rehabilitated in order to obtain repairs in the shortest time for those power stations which could be put back into operation with the least possible delay.

Another reason was that it permitted the assignment of an officer to a given project with no other responsibility than to coordinate the repair work and insure that materials etc. were arriving on schedule. This avoided many delays which would have otherwise occurred. That this procedure was correct was demonstrated by the slowing down of repair progress on projects after officers were withdrawn due to shortage of personnel. The utilities cannot be blamed for this since nearly everything they required except labor was in short supply. In addition, the turning over to the Italian Government of all supply and transportation matters was in the transitory stage with a consequent delay. It is accepted that this transition had to come sooner or later and the quicker that the utilities and the Government were required to guide their own efforts, the quicker they would get started on the road to recovery.

With the cessation of hostilities and the relinquishing of controls, the Electrical Division's functions changed to one of entirely advisory with the Italian Government so that by March 1946 only two officers, one civilian engineer and one draftsman remained. The Division ostensibly dealt with power matters at Government level and on a national basis.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

III- PERSONNEL

The Electrical Section began to build up its organization in Palermo in December of 1943, which at that time comprised 2 officers, the Chief who was a Lieutenant Colonel, and 1 Captain. Additional officers joined the Section during the first half of 1944.

After the liberation of Central Italy in the summer of 1944, and the damage which had been sustained by that area had been appraised, it was considered that arrangements should be made to expand the organization in order to provide the personnel needed, not only to direct the rehabilitation work from Headquarters, but to provide qualified personnel for the regions. In addition, it was anticipated that the enemy would likely carry out wide-spread demolition of facilities in Northern Italy similar to that which had been done in Central Italy. Accordingly, the organization was expanded and reached its peak in March 1945. The officer personnel totaled 28 and the enlisted personnel 3. The officer personnel comprised 2 Lieutenant Colonels, 16 Majors, 8 Captains, 1 Lieutenant, and 1 Warrant Officer. American officers totaled 23 and British officers 8.

All officer personnel were carefully selected and only those who had had experience in public utility construction and operation and who were electrical engineers were taken on the staff.

Practically every branch of the military service was represented as it was difficult to find officers with proper qualifications and who had had previous experience with utility operations.

The civilian staff at Headquarters comprised 6 Italian civilian electrical engineers, 4 draftsmen, and 5 administrative assistants and typist interpreters.

The officers who were assigned to regions built up their own civilian personnel staff and no attempt is made here to enumerate that personnel.

In view of the relatively slight destruction of electric power facilities in North Italy as compared to other areas (Central and South), a reduction in officer personnel began shortly after VE-Day by redeployment and other assignments, so that by March 1946 the Electrical Division comprised 1 Colonel, 1 Major, 2 enlisted men, 1 Italian civilian electrical engineer, 1 draftsman, and 1 clerk stenographer.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

IV- MILAN OFFICE

Based on experiences in Central Italy and other information, it was assumed that the enemy in his withdrawal from North Italy would destroy as much of the electric power facilities as possible. In view of this expected situation, a plan was prepared for coordinating the rehabilitation of electric plants and transmission facilities and the restoration of electricity supply in that part of Italy. The plan included two reconstruction teams of three electrical officers each attached to Regions, but working according to instructions issued by the Chief of the North Italy electrical rehabilitation office to be located in Milan upon liberation. This entire group of personnel were transferred to the Florence office in April 1945 to complete operational plans and to be ready to proceed immediately after the advancing Allied Armies.

When Bologna was liberated in April the city was practically without electricity, having only 400 KW available as against a normal load of 20,000 KW. The enemy had destroyed the main sub-stations and damaged lines receiving high voltage power from the North. This left only the old "Bottiferro" thermal plant as the sole means of supply for the city. Two of the electrical reconstruction officers immediately went to Bologna and by working with Allied Military Government, 5th Army, and representatives of the local electric company, "Bolognese", the city was receiving about 8,000 KW by 1 May 1945 and by 7 May the supply had increased to 15,000 KW.

The Electrical Division office was established in Milan on 20 May with two officers of the reconstruction group. Two more of the officers were sent to Venice, two to Genova, and one to Turin. A quick survey of the damage in the North verified this as the best distribution and utilization of personnel.

Although there was a surplus of power in North Italy upon liberation, there were many areas without sufficient energy due to transmission line damage. The repair of these lines and lines interconnecting North and Central Italy were of first priority. By 10 July 1945 North Italy was supplying Florence with about 8,000 KW thereby relieving the Central Italy system by that much load. Additional repairs to other lines increased this amount by early October 1945 to the limit of transformer capacity in Florence or about 60,000 KW.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

V- REGIONAL ENGINEERS

It is mentioned elsewhere in this report that the rehabilitation of generating plants and transmission lines and sub-stations of 30,000 volts and above was made the responsibility of the Electrical Division.

The Regional Electrical Officer was responsible for the rehabilitation of distribution systems and transmission systems below 30,000 volts. Likewise, he arranged for all the operating supplies required by the utility companies such as fuel, gasoline, transportation, heavy workers' rations, clothing, and many other items needed in the ordinary day to day operation and functioning of utilities. He also supervised the rehabilitation and restoring to service of the local gas plants and water pumping systems. In addition, he was required to screen and approve all requests for electric service for civilians and see that military requests for electric service were complied with.

In case an Electrical Officer from this Division were directing the rehabilitation of a specific power station or a transmission line, he would work through the Regional Electrical Officer for the necessary supplies, heavy workers' rations, transportation, etc., since all items of that nature were handled at Regional level.

When the Public Works and Utilities Sub-Commission started to function, the Regional Engineer, designated as such, did not exist. Consequently there was a lack of coordination and responsibility among Regional Officers engaged in engineering activities.

Each officer was overburdened with innumerable other duties, such as rail transportation, lighthouses, ports, telecommunications, etc., and therefore was subordinate to more than one Sub-Commission at the same time. These officers were not sure as to whom they were responsible, excepting their responsibility to the Regional Commissioners.

Finally, in April 1944, a definite procedure was established for the operations and functions of the Regional Engineers. It was agreed that they would be responsible directly to the Regional Commissioner and would act as his advisor in engineering matters. However, Regional Engineers were to be responsible to Public Works and Utilities Sub-Commission on technical matters, matters of policy and administration, and for assignments and transfers.

On 15 June 1944 responsibility for military highways became another duty of the Regional Engineers in addition to the other roads and bridges, buildings, ports, electrical installations, water-works,

Declassified E.O. 12356 Section 3.3/NND No. 785019

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On 15 June 1944 responsibility for military highways became another duty of the Regional Engineers in addition to the other roads and bridges, buildings, ports, electrical installations, water-works, gas works, prisons, sewers, waterways, housing, bonificho, etc.

Regional Engineers and their Public Works Officers are to be commended for the manner in which they performed their work, especially in the carrying out of urgent undertakings necessary immediately upon liberation of territories under their jurisdiction. In a number of cases the Regional Engineer was asked by the Army to have his forces

Declassified E.O. 12356 Section 3.3/NND No. 785019

ready to go into a town and make necessary repairs to sewer and water systems and restore electric service in order that the Army Engineers would not have to be burdened with this task. It was in this way that this Division was able to carry out a most important function, that of relieving Army personnel by accomplishing urgent works with Italian civilian personnel. This work was done at the request of the Fifth and Eighth Armies and it was at these times that the Regional Public Works Organizations really brought credit to this Division. The work done by the Regional Engineers immediately after the liberation of Naples also warrants special mention.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

VI - RELATIONS WITH ITALIAN GOVERNMENT

The necessity of eventually turning over the complete program of electric rehabilitation to the Italian Government was fully realized, and every effort made to coordinate the work of the Sub-Commission with that of the Italian Ministry of Public Works. In furtherance of this, the Electrical Department of the Ministry, towards the end of 1944, established offices adjacent to those of this Division in the building (Ministero dello Corporazioni, Rome).

The Electrical Division dealt directly with its opposite in the Ministry, namely, the Inspector General for electricity, water and gas.

The Liaison Office mentioned above was staffed with Italian engineer personnel and provided a most useful and time-saving method for handling the related work of the two groups. Numerous trips back and forth between the Ministry and Allied Commission were thereby avoided, as well as time consuming conferences.

By the end of 1945 all functions formerly handled by the Electrical Division had been transferred to the Ministry and the Allied personnel only acted in an advisory capacity and gave material assistance where necessary in the case that some other Ministry was involved. This was accomplished by working through the respective Allied Commission Sub-Commission which was responsible for handling the particular subject concerned.

The Inspector General Staff of the Ministry of Public Works cooperated to the best of its ability in spite of shortage of competent personnel and the fact that the Department had never been officially established under Italian law. This fact handicapped them to a considerable degree in that the utility companies did not, in the early stages, have faith in Government's ability to assist them. Much time was spent by the Electrical Division personnel in bringing representatives of the Government and the companies together largely through the Advisory Committee organizations discussed in another section of this report.

It can be stated, however, that relations between the Government and the Utilities, while no means perfect, were far better at the end of the year 1945 than they were at the start in the summer of 1944.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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It can be stated, however, that relations between the Government and the Utilities, while no means perfect, were far better at the end of the year 1945 than they were at the start in the summer of 1944.

Both Government and Utilities now realize that they must work together and that neither group will, in the future, have the Electrical Division personnel of Allied Commission available to assist them in their collaborations.

Declassified E.O. 12356 Section 3.3/NND No. 785019

VII-UTILITY COMPANIES

The greater part of electric utility service in Italy and the Islands is furnished by privately owned companies. EXHIBIT No. 21, Volume 2, gives the areas of Italy which are supplied by the principal companies. Small utilities are not indicated. The map shows the abbreviation commonly used in referring to the companies and for purposes of identification the following tabulation gives the commonly used abbreviations and the full names. Those indicated by an asterisk are not indicated on the map since they are either industrial or only provide retail electric service in relatively small areas.

(Edison) Societa Edison Group
(S.I.P.) Societa Idroelettrica Piemonte Group
(S.A.D.E.) Societa Adriatica di Elettricita Group
(Selt Valdarno) Societa Elettrica Valdarno Group
(S.R.E.) Societa Romana di Elettricita Group
*(Terni) Societa Terni
(U.N.E.S.) Unione Esercizi Elettrici Group
(S.M.E.) Societa Meridionale di Elettricita Group
(S.G.E.S.) Societa Generale Elettrica della Sicilia
(S.E.S.) Societa Elettrica Sarda
(S.I.T.) Societa Industriale Trentina
*(Falck) Societa Falck
*(Montecatini) Societa Montecatini
*(Cogne) Societa Cogne
*(Larderello) Societa Larderello
*(A.E.M.) Azienda Elettrica Municipale Milan (Publicly owned)
*(A.E.M.) Azienda Elettrica Municipale Turin (Publicly owned)
(A.C.E.A.) Azienda Comunale Elettricita e Acquo (Publicly owned)
*(E.A.V.) Ente Autonomo del Volturno
*(S.I.M.A.) Societa Idroelettrica Medio Adige
*(Ponale) Societa Ponale
*(F.F.S.S.) Ferrovie Dello Stato (State Railways) (State owned)
*(A.E.C.B.M.) Azienda Elettrica Consorziale Bolzano e Merano (Publicly owned)

Each of the above companies, without asterisks, has in most cases several subsidiary companies.

At this point mention should be made of the management and [illegible] ing personnel of the utilities [illegible]

Declassified E.O. 12356 Section 3.3/NND No. 785019

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(S.I.T.) Societa Industriale Trentina
*(Falck) Societa Falck
*(Montecatini) Societa Montecatini
*(Cogne) Societa Cogne
*(Larderello) Societa Larderello
*(A.E.M.) Azienda Elettrica Municipale Milan (Publicly owned)
*(A.E.M.) Azienda Elettrica Municipale Turin (Publicly owned)
(A.C.E.A.) Azienda Comunale Elettricita e Acque (Publicly owned)
*(E.A.V.) Ente Autonomo del Volturno
*(S.I.M.A.) Societa Idroelettrica Medio Adige
*(Ponale) Societa Ponale
*(F.F.S.S.) Ferrovie Dello Stato (State Railways) (State owned)
*(A.E.C.B.M.) Azienda Elettrica Consorziale Bolzano e Merano (Publicly owned)

Each of the above companies, without asterisks, has in most cases several subsidiary companies.

At this point mention should be made of the management and engineering personnel of the utilities' companies in Italy. All Allied officers who have had occasion to work with the engineers of the electric utilities have been unanimous in expressing approval of their ability and cooperativeness throughout the war and the period of Allied Military Government control. They demonstrated resourcefulness and perseverance under the most trying and difficult conditions. The work accomplished in carrying out the electric power rehabilitation program is due largely to the willing and energetic cooperation of the utility company engineers working with Allied engineer officers. It is felt that by such cooperation these companies' engineers made a great contribution to the successful conclusion of the war in Italy.

Declassified E.O. 12356 Section 3.3/NND No. 785019

VIII. THE ELECTRIC POWER MISSION
THE CENTRAL ELECTRICAL BOARD
ELECTRICAL RECONSTRUCTION COMMITTEE (ITALY)

Three Committees were formed for the purpose of planning the rehabilitation of electrical power facilities in Italy. The Electric Power Mission, the Central Electrical Board, and the Electrical Reconstruction Committee all functioned in turn during 1944 and part of 1945.

Finally, in October 1944 the Electrical Reconstruction Committee was formed (under Allied Force Headquarters (A.F.H.Q.) Administrative Memorandum 43 and 58) and this was the body under which operations were carried out until the liberation of North Italy in the spring of 1945. The Chairman was the Chief Engineer of Allied Force Headquarters (A.F.H.Q.).

Membership of the Committee included representatives from:

Chief Engineer	Allied Force Headquarters
Director of Works	" " "
Allied Commission	
Peninsular Base Section	
Military Railway Service	
Military Districts No. 1 and No. 3	
Royal Navy	

The Secretary was an officer of the Electrical Division (of this Sub-Commission).

The Committee met once a month for the purpose of reviewing progress of power-plant and transmission-line rehabilitation, being carried out by the Sub-Commission and such work as was being done by the Army Engineering Units. It sat as a coordinating group for all Military agencies and units concerned with power supply and discussed problems that might be hindering or delaying rehabilitation work or affecting military planning or operations. Two examples were; the plans for importation of mobile power units; and providing a power supply to Bologna in anticipation of its liberation.

A later Allied Force Headquarters (A.F.H.Q.) Memorandum No. 58 [illegible] stated what was expected

Declassified E.O. 12356 Section 3.3/NND No. 785019

were carried out until the liberation of North Italy in the spring of 1945. The Chairman was the Chief Engineer of Allied Force Headquarters (A.F.H.Q.).

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A later Allied Force Headquarters (A.F.H.Q.) Memorandum No. 58 (December 1944) (EXHIBIT 1 attached) stated what was expected from each of the Services. The Allied Commission was charged with and carried out, through the Sub-Commission, the following functions:-

(1) Furnished a Secretariat for the Committee
(2) Was responsible for planning power rehabilitation throughout Italy.
(3) Maintained liaison with Allied Armies in Italy (A.A.I.) and kept Army Commands informed as to the existence and condition of power plants and probable rehabilitation needs, in operational areas.
(4) Ascertained power requirements from Allied Armies in Italy (A.A.I.), Army Commands, Peninsular Base Section (P.B.S.), Districts (British) and other sources.

Declassified E.O. 12356 Section 3.3/NND No. 785019

(5) Submitted plans for rehabilitation to the Chief Engineer of Allied Force Headquarters (A.F.H.Q.) for consideration and approval of the Committee.
(6) Using Italian labor and local materials, directed, administered and supervised construction work of rehabilitation, and operated the power systems (except those projects specifically assigned to other agencies by Allied Force Headquarters).
(7) Issued all orders necessary to implement the program to Italian power companies, or other civilian agencies.
(8) Kept the Chief Engineer (Allied Force Headquarters--A.F.H.Q.) advised of its activities.

The last meeting of the Committee was held on 17 April 1945 and adjourned subject to call by the Chairman. In view of the relatively small damage to the electric facilities of North Italy no further meetings as a Committee were deemed necessary, with the result that on 30 May 1945 Allied Force Headquarters (A.F.H.Q.) Administrative Memorandum number 32 (EXHIBIT No. 2, Volume II) was issued dissolving the Committee. All functions previously performed by the Committee were transferred to Allied Commission. This responsibility was then carried out by the Electrical Division of Public Works and Utilities.

Shortly after Allied Commission assumed the responsibility steps were taken to gradually withdraw from active participation in direct control of rehabilitation by letting the utility companies carry on by themselves with the Sub-Commission only stepping in when a project was in difficulties or the utilities desired assistance. At the same time, the Ministry of Public Works was directed to organize and it began taking over the functions performed by the Sub-Commission, with the result that by 31 December 1945 the Sub-Commission was acting only in an advisory capacity to the Ministry.

The last major project in which the Sub-Commission took a direct interest was the rehabilitation of the 150,000 volt line between Terni and Foggia which was put into operation in December 1945, thereby permitting a flow of power from Central to Southern Italy.

Declassified E.O. 12356 Section 3.3/NND No. 785019

(b) Keeps the Chief Engineer (Allied Force Headquarters--A.F.H.Q.) advised of its activities.

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Declassified E.O. 12356 Section 3.3/NND No. 785019

IX - ELECTRIC POWER COMMITTEE
ALLIED FORCES LOCAL RESOURCES (ITALIAN) BOARD - A.F.L.R.(I.)B.

The power supplies of Italy were considered a local resource and "bid-for" and allocated in the same way as all other commodities needed to further the war effort.

Strict control was necessary in order to keep consumption within the availability of power.

Allocation was done by the Electric Power Committee of the Allied Forces Local Resources (Italian) Board (A.F.L.R.(I.) B.) which met monthly, and was made up of representatives of the Allied Commission, Peninsular Base Section (P.B.S.), Allied Force Headquarters (A.F.H.Q.) Military Railway Service (M.R.S.), Rome Area Allied Command (R.A.A.C.), 15th Army Group, and Military Districts.

Officers of the Electrical Division, Allied Commission, were responsible for the correlating of all bids for power from Military districts, and keeping the Committee advised on the overall power supply situation in occupied Italy.

The Committee was first formed in November 1943 and Allied Commission was made a member the following month. From that date until control was passed to the Italian Government in December 1945 the Electrical Division was called upon to advise the Committee on the power supply situation in Southern and Central Italy. No allocations were considered necessary for the Islands of Sicily or Sardinia.

Plans and arrangements were made to set up a Committee for North Italy prior to its liberation. Due to the limited damage to facilities in the North, however, no Committee was required; there being sufficient electric power for military and essential civilian needs.

The Electric Power Committee of the Allied Force Local Resources (Italian) Board (A.F.L.R.(I.) B.) as such held its last meeting on 29 September 1945, at which time a new Committee known as Allied Force Electric Power Committee was formed which carried on until its last meeting held on 24 November 1945. During the life of this latter Committee arrangements were made by this Division to form an Italian Governmental Committee to take over the responsibility for power allocations, beginning with January 1946. Accordingly, the Committee, known as the "Central Commission on Distribution and

Declassified E.O. 12356 Section 3.3/NND No. 785019

monthly, and was made up of representatives of the Allied Force Headquarters (A.F.H.Q.) Peninsular Base Section (P.B.S.), Allied Force Headquarters (A.F.H.Q.) Military Railway Service (M.R.S.), Rome Area Allied Command (R.A.A.C.), 15th Army Group, and Military Districts.

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In order to facilitate the correlation of Military and civilian requirements Regional or Local Power Commissions were established in Milan for North Italy and in Rome for Central and Southern Italy.

The only stipulation to the Italian Government in the turnover of control was that the Military requirements must receive first priority.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Representatives of military agencies would also attend future meetings if they desired to act in an advisory capacity.

Control of electric power and its allocation will be necessary for 1946 and will in all probability extend into 1947. As a matter of information the Government, during the months of January, February, and March 1946, began to get a more clear understanding and a firmer grasp of problems and were in a position to assume full responsibility with a minimum of assistance.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

X - ADVISORY COMMITTEES ON ELECTRIC POWER

To facilitate electricity supply, the individual electric companies, with their transmission nets, which had formerly operated more or less independently, were grouped to constitute electric transmission grids on an area basis. In order to coordinate the rehabilitation of electric facilities Regional Advisory Committees on Electric Power were formed, corresponding to the transmission grid areas. These Committees included, as members, technical representatives of the electric companies and held monthly meetings under the chairmanship of the Chief of the Electrical Division. The Vice-Chairman was a representative of the Ministry of Public Works.

Regional Committees were formed in February 1945 for Sicily, Sardinia, Southern Italy, and Central Italy. The Northern Italy Committee was formed on 19 July 1945.

On 27 July 1945, the National Advisory Committee was formed and held its first meeting with the Inspector General for Electricity, Water and Gas at the Ministry of Public Works as chairman.

Membership in the National Committee included selected representatives from the five Regional Committees and other engineers qualified to advise the Italian Government on matters relative to electric power. Subsequent meetings of representatives of this group were held at the request of the Inspector General for Electricity, Water and Gas.

These Committees served a very useful purpose in that they provided an orderly procedure whereby the many problems facing the Utilities could be discussed collectively and provide the Italian Government with information on the needs and problems with which the Utilities were faced. Acute problems pertaining to rates, finances, supplies, transportation, rehabilitation, and power supply and rationing confronted the companies and for which solutions were required.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

IX -THE CENTRAL ITALY GRID AND MASTER CONTROL CENTER

Prior to Allied occupation, the Utility companies in Central Italy operated their systems independently of one another, although interconnections existed between companies for power interchange at the convenience of the Utilities. Damage was so thorough and widespread when the Allies occupied Central Italy in June 1944 that power flow between areas was out of the question. By December 1944 sufficient transmission lines and power plants had been rehabilitated to permit pooling of available power. The Rome thermal plants which were being used as the principal source of power, starting with June 1944, were in a bad state of repair and maintenance. In addition they were consuming large quantities of coal and oil which were needed badly for other military and essential civilian purposes.

The few generators operating on each system ran at maximum output, with no spare production capacity. Consequently, an instance of minor plant trouble frequently forced the temporary shutdown of an entire system. In the early days of occupation interruptions of this nature were to be expected. It followed, however, that the reliability of the service should increase as more plants were repaired, and as demands of important military and civilian consumers became more exacting. Unified operation involved the designation of sufficient reserve generating capacity, connected to the system, so that electric power supply would continue even though trouble occurred at a particular plant or machine.

It was therefore arranged to tie the systems of the 5 companies of Central Italy into a common grid under one Central Control. Rome thermal plants were to be changed from base load plants to stand by and peak load stations only.

The first essential of unified operation was the creation of a "Control Center" which, through constant communication with the generating and switching stations, could issue all instructions. The Control Center was staffed with 3 Italian civilian engineers who had a thorough knowledge of the plants and the transmission network, and of their peculiarities. The control engineers were the "hour-by-hour directors" of electric operations in Central Italy, and by their [illegible] could regulate the flow of power from the generating

Declassified E.O. 12356 Section 3.3/NND No. 785019

to permit pooling of available power. The Rome thermal plants which were being used as the principal source of power, starting with June 1944, were in a bad state of repair and maintenance. In addition they were consuming large quantities of coal and oil which were needed badly for other military and essential civilian purposes.

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The first essential of unified operation was the creation of a "Control Center" which, through constant communication with the generating and switching stations, could issue all instructions. The Control Center was staffed with 8 Italian civilian engineers who had a thorough knowledge of the plants and the transmission network, and of their peculiarities. The control engineers were the "hour-by-hour directors" of electric operations in Central Italy, and by their instructions would regulate the flow of power from the generating stations to all required points in accordance with power allocations. In the "Control Center" were telephones permitting immediate communication with plants. Large one line diagrams of the systems were made and so arranged that the position of switches and the operation of machines could be shown at all times. Indicating and recording volt meters and frequency meters for the guidance of the operators were installed.

Two duplicate Control rooms were set up, one at the Headquarters of Allied Commission in Rome and the other in the office building of the Romana Electric Company in Rome. Duplicate Control rooms were established for security reasons so that the staff could operate from either one if necessary.

Declassified E.O. 12356 Section 3.3/NND No. 785019

The first Control room was officially dedicated and put into operation on 20 January 1945 by the Minister of Public Works of the Italian Government.

The principal obstacle that had to be overcome was the different frequencies at which the systems operated. These were 50, 45, and 42 cycles. After considerable experimentation a frequency of 47 cycles was found to cause the least inconvenience to generating machinery and customer usage, especially motors, driving equipment requiring fixed speed.

The Central Italy grid was operated at 47 cycles until about August 20, 1945 when the entire grid was placed on 50 cycle operation with a view toward synchronizing the Central Italy grid with the power supply of 50 cycle service coming from North Italy. Also the 50 cycle service was established in Central Italy in anticipation of a general standardization of frequency throughout Italy to eventually be 50 cycles. Due to the extreme long line transmission from North Italy to the Central Italy area without sufficient synchronous condenser capacity, it was found impractical to synchronize the North Italy supply with the Central Italy grid, thus making it necessary to place the Florence-Leghorn area in a 50 cycle grid area receiving power from North Italy, in addition to that generated by local plants. The remainder of Central Italy then continued to operate on 50 cycles until November 1945 when the power shortage began to become more acute resulting in a reduction in frequency due to increased seasonal load.

Cooperation between the companies was a second essential of the scheme. This was accomplished through the Central Italy Advisory Committee discussed elsewhere in this report.

In the beginning it was planned that the Control would be supervised closely by the Sub-Commission. As it progressed, however, less supervision was necessary and was administered more and more by the (Italian) Ministry of Public Works and the Advisory Committees. The Minister showed close personal interest in the scheme, and his technical representatives were in constant touch with it.

Management was by a Board composed of th

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Management was by a Board composed of the company representatives, and the Chief of the Electrical Division serving as Chairman until full control was turned over to the Advisory Committee on Electric Power for Central Italy in June 1945 after the cessation of hostilities in Italy.

Declassified E.O. 12356 Section 3.3/NND No. 785019

XII - FREQUENCY AND VOLTAGE STANDARDIZATION

The electric industry of Italy has been faced with the problem of frequency standardization for several years and prior to the war had taken steps to ultimately arrive at a standard of 50 cycles.

At the present time the frequencies in Italy are 42, 45, 47 and 50. Reference to EXHIBIT 21, Volume 2, will indicate the areas in which the various frequencies are used.

Before the war the Italian Government issued a decree that a frequency standardization of 50 cycles should be accomplished by 1950.

The destruction of electric utility plant equipment and industrial installations and the necessity for combining the various systems, especially in Central Italy, has accelerated the program for Central and Southern Italy. Some of the problems of frequency that were confronted in combining the systems in Central Italy have been discussed under the section "Central Italy Grid--Master Control Center."

As a result, Legislative Decree no. 255 dated 5 April 1946, EXHIBIT NO. 3, Volume 2, has been promulgated directing that utility companies in Central and Southern Italy and the users of electric power arrange to convert to 50 cycle frequency by 31 December 1946. It is not expected that all of the conversion will be completed by that time, but the decree serves as advance notice in order that everyone involved can begin making plans and preparations for the change.

The principal difficulty will be the adaptation by certain large industrial customers and large pumping installations providing water supply, drainage and bonifiche.

Standardization of frequency will eliminate costly equipment in the way of frequency changer installations, generator and transformer equipment. The amount of power between companies has been restricted by such installations.

The greatest benefit will be to consumers using rotating machinery and to manufacturers of such rotating equipment. The consumer will be able to utilize his apparatus in other areas and the manufacturer will not have to stock equipment of various frequency characteristics.

The standardization of voltage is now being given active consideration

Declassified E.O. 12356 Section 3.3/NND No. 785019

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The greatest benefit will be to consumers using rotating machinery and to manufacturers of such rotating equipment. The consumer will be able to utilize his apparatus in other areas and the manufacturer will not have to stock equipment of various frequency characteristics.

The standardization of voltage is now being given active consideration by the government and the utility companies. This includes customer service voltages and transmission voltages. Here also the customer, the utility and the manufacturer will benefit. The customer will be able to purchase equipment that can be used anywhere in Italy which is not the case at present. The utility will benefit by not having to stock materials and parts to repair and maintain lines and equipment for a wide variety of voltages. The manufacturer will be able to produce and stock standard lines of material.

In addition to the frequencies mentioned above, there is considerable generating capacity with a frequency of 16.6 cycles used in some of the electric railway service.

Declassified E.O. 12356 Section 3.3/NND No. 785019

XIII - EMERGENCY POWER SUPPLY FOR ROME FROM SOUTHERN ITALY

Early in 1944 intelligence reports indicated that the enemy was preparing to carry out wide-spread demolition of electric facilities in Central Italy in anticipation of being driven out of the territory.

It therefore became necessary to plan an electric supply for Central Italy and principally to meet the minimum military and essential civilian needs for Rome which had a population of over a million inhabitants.

Accordingly, arrangements were made to furnish approximately 15,000 KW from the Naples area through the 120,000 volt State Railways' line. The Electrical Division collaborated with the Peninsular Base Section (P.B.S.) and Military Railway Service (M.R.S.) in setting up the plan. An officer of the Electrical Division was loaned to the Peninsular Base Section (P.B.S.) to take charge of the project.

The Electrical Division had the responsibility for arranging for battalions of Italian army engineers, work battalions recruited from the State Railways system of Southern Italy and collection and assembling at strategic points of sufficient materials to repair the line as fast as combat operations would permit.

The section of line between Frattamaggiore and Naples and the front line in the vicinity of Minturno was repaired and ready to operate prior to the historical drive for Rome in the early summer of 1944. A training program was instituted for the construction gangs.

Aerial photographs were made from time to time of that portion of the line still in enemy territory.in order to appraise the extent of damage and in order to plan the work accordingly.

It was decided to use wooden poles where repair work was necessary and sufficient hardware and conductor were assembled to carry out the job which was so planned that the line would be in operation within 3 to 4 weeks after Rome fell.

As soon as it was possible to enter Rome, examination was made of the thermal plants in the city and it was found that they were capable of producing sufficient power and while they were in a bad state of repair they had not suffered any serious damage from mining or bombing and were capable of producing approximately

Declassified E.O. 12356 Section 3.3/NND No. 785019

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As soon as it was possible to enter Rome, examination was made of the thermal plants in the city and it was found that they were capable of producing sufficient power and while they were in a bad state of repair they had not suffered any serious damage from mining or bombing and were capable of producing approximately 25,000 KW of capacity.

This was deemed sufficient to meet the military requirements and essential civilian needs of the city, and reconstruction work on the proposed line was stopped due to the fact that the supply of power was not considered as a military necessity. Also in view of the fact that the material required and which had been assembled would probably be more urgently needed in other areas of Italy when liberated, it was decided to hold this material in reserve for such contingencies.

Declassified E.O. 12356 Section 3.3/NND No. 785019

XIV - IMPORTATION OF EMERGENCY POWER PLANT EQUIPMENT

The enemy had carried out such wide-spread damage to electric facilities in Central Italy that the Sub-Commission, in the summer of 1944, began laying plans to cope with a similar situation that might be expected in Northern Italy.

In view of the heavy demand being made upon the Allies for all types of war materials it was not anticipated that any great amount of emergency equipment could be obtained. However, it was decided that everything should be done to arrange for as much as possible.

Therefore, in accordance with Allied Force Headquarters (A.F.H.Q.) instructions, representatives (of the Sub-Commission) proceeded to Washington on 24 September 1944 to present a requisition which had been approved by Allied Force Headquarters (A.F.H.Q.) for 60,000 KW of portable electrical generating plant capacity for use in Italy.

The first reaction in Washington was that while plants had been ordered for other theatres as a military requirement, no request had previously been made for Italy, beyond that for small operational units; also that the requisition, being largely for civilian requirements, would necessarily have a lower priority than those of other Theatre Commanders (which had been rated as military).

Washington finally agreed that 40,000 KW of plant should be accepted as military, and 20,000 KW as a civilian requirement.

After much discussion and many meetings it was finally agreed that the following plant would be made available to this theatre (Italy):-

(a) 25,000 KW floating power-plant, delivery April 1945
(b) 15,000 KW of portable steam units, February/March 1945
(c) 20,000 KW to be supplied when available.

Further meetings were held in London, but as all portable plants coming from the production lines were promised to Supreme Headquarters Allied Expeditionary Forces (SHAEF) it was not possible to make any available for Italy.

In London arrangements were made for the Emergency Pool of Spare Materials held by the Central Electricity Board to be made available to Italy, as and when required. This consisted of emergency sub-

Declassified E.O. 12356 Section 3.3/NND No. 785019

In view of the heavy demand being made upon the Allies for all types of war materials it was not anticipated that any great amount of emergency equipment could be obtained. However, it was decided that everything should be done to arrange for as much as possible.

Therefore, in accordance with Allied Force Headquarters (A.F.H.Q.) instructions, representatives (of the Sub-Commission) proceeded to Washington on 24 September 1944 to present a requisition which had been approved by Allied Force Headquarters (A.F.H.Q.) for 60,000 KW of portable electrical generating plant capacity for use in Italy.

The first reaction in Washington was that while plants had been ordered for other theatres as a military requirement, no request had previously been made for Italy, beyond that for small operational units; also that the requisition, being largely for civilian requirements, would necessarily have a lower priority than those of other Theatre Commanders (which had been rated as Military).

Washington finally agreed that 40,000 KW of plant should be accepted as military, and 20,000 KW as a civilian requirement.

After much discussion and many meetings it was finally agreed that the following plant would be made available to this theatre (Italy):-

(a) 25,000 KW floating power-plant, delivery April 1945
(b) 15,000 KW of portable steam units, February/March 1945
(c) 20,000 KW to be supplied when available.

Further meetings were held in London, but as all portable plants coming from the production lines were promised to Supreme Headquarters Allied Expeditionary Forces (SHAEF) it was not possible to make any available for Italy.

In London arrangements were made for the Emergency Pool of Spare Materials held by the Central Electricity Board to be made available to Italy, as and when required. This consisted of emergency sub-stations which could be quickly installed.

The disposition of the generating equipment was placed in the hands of the Electrical Reconstruction Committee who were to determine the points in North Italy where the equipment could be used to best advantage.

Two possible locations were selected for the 25,000 KW floating unit, namely, Genova and Venice; the other units being smaller were to be located after North Italy was liberated and the points of greatest need determined.

Declassified E.O. 12356 Section 3.3/NND No. 785019

In view of the limited war damage to electrical facilities in the North it was decided to cancel all shipments of equipment in order that they could be made available to other war theatres. This was done on 21 May 1945.

Some use was made of single phase 25 KW truck mounted diesel units which were obtained in the theatre. These were radar PE-84-9/54 units mounted on K-56 van body trucks. Fifteen of these units were distributed to the Northern Regional Public Works and Utility groups prior to the campaign for the liberation of North Italy. Temporary use of these was made in several localities, especially in Emilia Region where damage to transmission lines was considerable. It was possible, however, to return all of the units to the Leghorn depot by the latter part of September 1945.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

XV - EMERGENCY IMPORTATION OF POWER FROM SWITZERLAND

In the early part of 1945 another scheme was set in motion to obtain emergency power in the event the enemy would be successful in carrying out demolition of electric facilities in Northern Italy. Swiss companies were to be asked to furnish as much power as they could spare over the existing transmission lines interconnecting the Swiss and Italian utility companies shown on EXHIBIT No. 22, part 5, as follows:

1. Vizzola Company--two 130 KV circuits--Campocologno to Cislago--capacity 60,000 KW.

2. Societa Idroelettrica Piemonte Company (S.I.P.)--one 130 KV circuit - Ponte Tresa to Vererio capacity 50,000 KW.

3. Edison Company--one 60 KV circuit - Ponte Tresa to Turbigo--capacity 15,000 KW.

Plans had also been started, before the war, by the utilities, to convert the 60 KV line (No. 3 above) to 130 KV, thereby increasing its capacity from 15,000 KW to 40,000 KW, this power to be used in the Milan area.

An officer of the Sub-Commission was sent to Switzerland for the purpose of contacting the Swiss companies and at the same time an engineer of one of the companies from Northern Italy was able to make his way through Switzerland and thence to Rome to finalize all arrangements. The fact that these two missions occurred at the same time was purely accidental, but does demonstrate the importance that was put on the idea by both this Headquarters and the utility companies in Northern Italy which was then in enemy hands.

The reinforcing of the transmission line involved financial arrangements between Switzerland and Italy and the procurement of necessary materials which were in short supply, both in Italy and Switzerland.

All negotiations were completed on the emergency arrangements so that at the time Northern Italy was liberated it would have been possible to obtain power and also to start work at once on increasing the capacity of the 60 KV transmission line.

After liberation the immediate carrying through and completion of the transmission line reinforcement were found to be unnecessary due

Declassified E.O. 12356 Section 3.3/NND No. 785019

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After liberation the immediate carrying through and completion of the transmission line reinforcement were found to be unnecessary due to the relatively small damage sustained by the electrical facilities in Northern Italy. Later, however, the project was started, as a private arrangement, and is scheduled to be finished by 1 July 1946.

Declassified E.O. 12356 Section 3.3/NND No. 785019

XVI - PARTISAN ACTIVITY - NORTH ITALY

The military authorities and the Allied Commission began receiving reports, early in the fall of 1944 and 1945, that the Partisans of North Italy were damaging electrical facilities with all good intentions as they believed they were thereby hampering enemy operations. It was known at that time that the enemy was planning extensive destruction to the extent that the principal power plants were being surveyed by demolition experts of the German Army. This consisted of labeling machines and key building supports for the amount of explosive that was necessary to effect the desired destruction.

The enemy had learned by experience that it was not wise to put the explosive in place until just prior to the time that the charges were to be set off since loyal employees of the companies would remove, if they had a chance, at great personal risk, the detonators, control wires, or the charges themselves. This was the case at the 45,000 KW Capuana steam plant at Naples where only partial destruction was realized even though the enemy had planned and placed charges sufficient to completely wreck the plant.

The military agency dealing directly with the Partisans was arranging to carry out a counter-scorching program by replacing enemy explosives with weak charges so that when the explosion did occur the actual damage would be minor, although appear to be otherwise; also to perform simulated demolition ahead of the enemy if necessary. In most cases of demolition it was practically impossible to determine the amount of damage until after the debris had been cleared away and the enemy would have no time to do this.

As a further step, it was planned to organize the Partisan activity in such a manner that certain selected plants would be immediately taken over and defended by the Partisans as soon as the drive for the liberation of Northern Italy was started. In this connection the Electrical Division prepared a selected list of plants in Northern Italy in order of priority. Only 25 plants were picked and these were so located as to provide some power to the principal metropolitan areas in Northern Italy in the event the enemy was able to destroy the remainder or had to be put out of commission by the Partisans.

In North Italy, almost throughout, the employees of the electric power companies were secretly organized as part of the Partisan forces. These employees very cleverly used the companies' carrier current telephone and other communication systems for the dispatch of informa-

Declassified E.O. 12356 Section 3.3/NND No. 785019

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In North Italy, almost throughout, the employees of the electric power companies were secretly organized as part of the Partisan forces. These employees very cleverly used the companies' carrier current telephone and other communication systems for the dispatch of information in connection with the protective schemes that were set up by the Partisans for safeguarding the electric power generating plants and transmission systems. This method of communication was also employed to assist other Partisans in taking effective measures to hamper the activities and operations of the German Army. The electric company Partisans developed a form of secret code amongst themselves which apparently was difficult for the Germans to compromise and consequently they were at a loss as to find out how so much information was being transmitted without their knowledge.

Declassified E.O. 12356 Section 3.3/NND No. 785019

In many instances, during the period of German occupation, loyal employees would remove delicate apparatus and control equipment from plants to points of safe-keeping and in several places actually burying it in the ground. The cores of some large transformers were removed and the transformer cases filled with oil. The cores were buried and after the area was liberated they were unearthed, replaced in the cases, and after being carefully dried out were placed back into operation.

An interesting instance of burying a whole station occurred in connection with the Canterno Plant located about 70 kilometers southeast of Rome. The Societa Romana di Elettricita was in the process of building this plant at the time of the Italian surrender. Rather than complete the plant, however, all the machinery, structural steel etc., was buried in the vicinity. When the area was liberated the machinery was dug up and construction resumed, with the result that this plant was completed and put into operation in February 1945, thereby adding 10,000 KW of badly needed generating capacity to the Central Italy grid system.

The success of the Partisan activity in the saving of plants cannot be appraised with any degree of accuracy as it was, of course, involved with the complete disorganization of the German Army after the push for North Italy started. However, in view of the fact that only 10% of the generating facilities of North Italy were found to be damaged after liberation, due credit should be given to those who were responsible for saving the plants whether they were Partisans or not. Without electric power, North Italy would have been completely paralyzed and the relief problem which would have had to be carried by the Allies would have been tremendous.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

XVII - RAINFALL AND PRECIPITATION IN ITALY

Since Italy relies almost entirely on hydroelectric plants for its power supplies, rains and melting snows are the sources of the water on which these plants depend to run the water turbines and generators which produce the electric power.

In Italy there are two types of hydroelectric plants, one of which depends on large reservoirs for their water supply commonly referred to as "storage reservoir plants" and second, those plants which are located on streams, referred to as "stream flow plants." Consequently, when there is a shortage of precipitation the output from the stream flow plants is greatly reduced and more dependency must be placed on the storage reservoir plants. If the snow and rainfall over a period of time is below normal, the storage reservoirs do not become refilled. Drought and lack of snowfall, therefore, not only have an immediate adverse effect upon the stream flow plants, but in addition do not replenish the storage reservoirs.

Under normal conditions before the war it was customary to send power from Southern and Central Italy to Northern Italy during the winter months when the streams and lakes in the Alps were frozen and when most of the precipitation in the North was in the form of snow. In the spring and summer the reverse operation took place when the snow in the Alps began to melt and some of the power produced therefrom was transported to Central and Southern Italy during the dry summer season. However, the transmission lines connecting North Italy with Central and Southern Italy were all damaged or destroyed and only part of these have been restored to operation up to the present time which only permits a very limited interchange of power.

The destruction of generating equipment in Central and Southern Italy, the unusual drought conditions which have existed during the past two years, and the unusual loads placed upon the power systems by domestic consumers due to a lack of artificial gas and other cooking fuels have all brought about a combination of conditions which aggravated the power shortage situation which existed throughout Italy during 1944 and 1945.

The tables, EXHIBIT NO. 4, Volume II, portray in millimeters the precipitation for the years 1944 and 1945 compared with the average which would normally be expected. The normal or average is computed from readings taken over a period of many years and is used as a basis for comparison.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Using the normal or average as 100% the 1945 precipitation in Northern Italy was 62% of the average, for Central Italy it was 51%, for Southern Italy it was 82%, for Sicily it was 83.5% and for Sardinia 62.5%.

Comparing the year 1944 with the normal, Northern Italy was 79.0% normal, Central Italy 86.0%, Southern Italy 104.0%, Sicily 89.5%, and Sardinia 84.5%.

Drought conditions not only existed in Italy, but extended to other countries of the Mediterranean basin. Spain and France reported acute power shortages due to drought conditions.

Declassified E.O. 12356 Section 3.3/NND No. 785019

XVIII - KWH PRODUCTION

The table, EXHIBIT No. 5, Volume II, is presented for the purpose of showing the effect of the war and drought upon power production in Italy. The statistics are portrayed in graphical form on the attached chart.

The table and the graph are given for the years 1940, 1941, 1942, 1943, 1944, and 1945 in order to show a comparison between the war years and the years prior to damage from combat operations and demolition.

The statistics are broken down into the areas of Northern Italy, Central Italy, Southern Italy, the Islands, and imported power. The latter comes from Switzerland and is produced in plants owned by Italian firms, but actually located in Swiss territory. The relation between hydro production and thermal production is also represented.

The statistics on energy production were obtained from the Associazioni Nazionale Imprese Distributrici Elettricita - "A.N.I.D.E.L." which is a national association of electric power companies and includes the following:

(Edison) Societa Edison Group
(S.I.P.) Societa Idroelettrica Piemonte Group
(S.A.D.E.) Societa Adriatica di Elettricita Group
(Selt Valderno) Societa Elettrica Valdarno Group
(S.R.E.) Societa Romana di Elettricita Group
(Terni) Societa Terni
(U.N.E.S.) Unione Esercizi Elettrici Group
(S.M.E.) Societa Meridionale di Elettricita Group
(S.G.E.S.) Societa Generale Elettrica della Sicilia
(S.E.S.) Societa Elettrica Sarda
(S.I.T.) Societa Industriale Trentina
(Falck) Societa Falck
(Montecatini) Societa Montecatini
(Cogne) Societa Cogne
(Larderello) Societa Larderello
(A.E.M.) Azienda Elettrica Municipale, Milan (Publicly owned)
(A.E.M.) Azienda Elettrica Municipale, Turin (Publicly owned)
(A.C.E.A.) Azienda Comunale Elettricita e Acque (Publicly owned)
(E.A.V.) Ente Autonomo del Volturno
(S.I.M.A.) Societa Idroelettrica Medio Adige
(Ponale) Societa Ponale
(F.F.S.S.) Ferrovie Dello Stato (State Railways) (State owned)

Declassified E.O. 12356 Section 3.3/NND No. 785019

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The data does not include energy generated by power plants of industrial firms. This information is intended to reflect the production of electric power in Italy.

It is interesting to note that in the year 1941 the total energy production and import for Italy amounted to 20,072,820,000 KWH; whereas in the year 1945 it was only 12,242,803,000 KWH or about 61%.

Declassified E.O. 12356 Section 3.3/NND No. 785019

The reductions for the years 1943, 1944 and 1945 were caused by the following:

(1) Damage due to combat operations and demolition
(2) Reduction in industrial operations.
(3) Drought conditions which prevailed during those years.

Causes (1) and (3) are discussed in detail in other sections of the report. The reduction in Central and Southern Italy and Sicily was due largely to (1) and (3). Due to the shortage of power in those areas it was necessary, of course, to restrict industrial operations not essential to the war effort and non-essential civilian needs.

In North Italy the reduction in 1944 and 1945, as compared with previous periods, can be attributed largely to the reduced industrial operations and, to some extent, the inability to send power to Central Italy due to the location of the combat lines and damaged interconnecting transmission facilities.

The reduction in thermal operation for Central Italy in 1944 and 1945 was due to the destruction of natural steam plants in the Larderello area. This was offset somewhat by the required operation of the Rome thermal plants.

The increase in thermal production in Southern Italy for 1944 and 1945 was due to the required operation of the Capuano steam plant at Naples.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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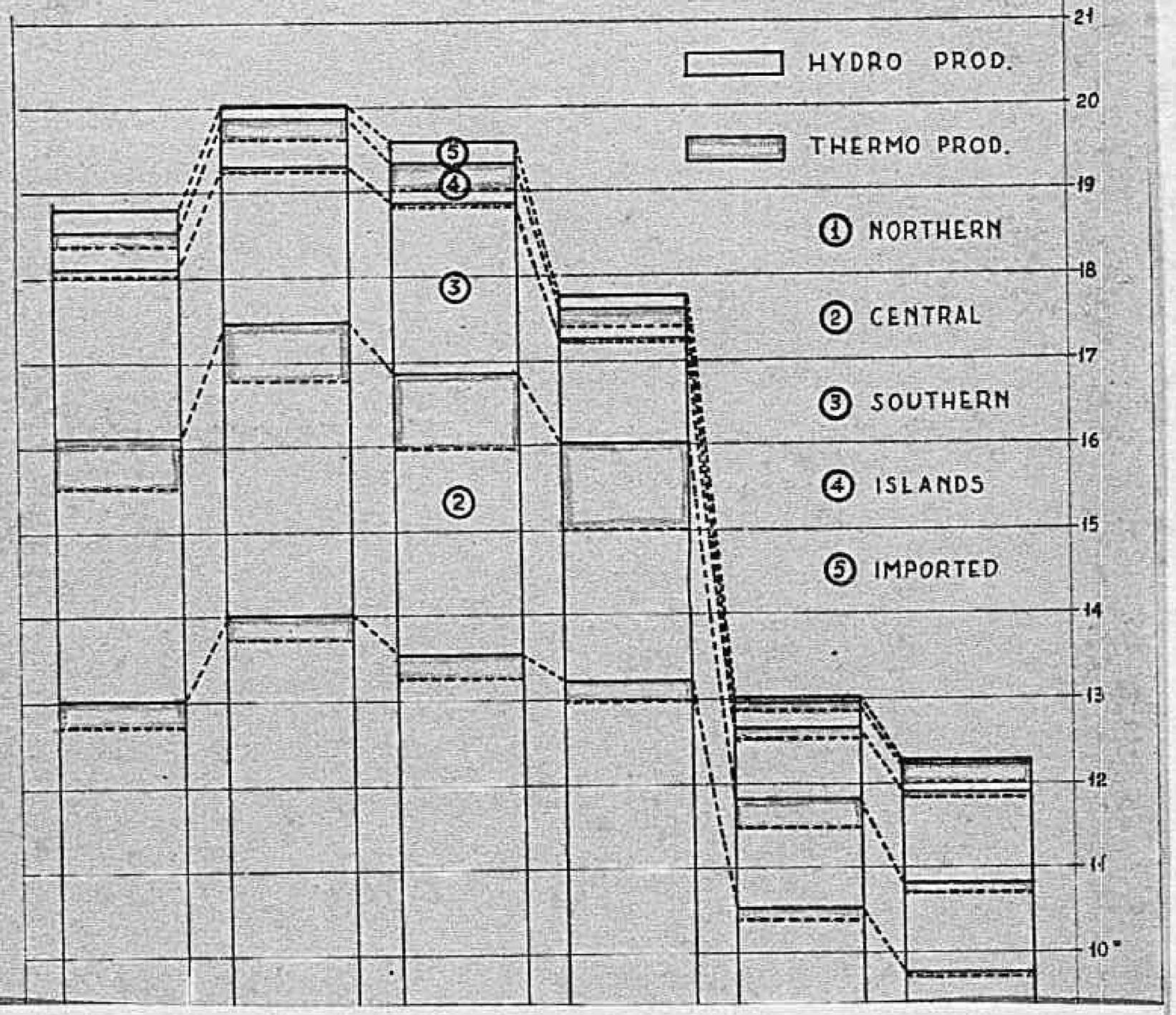
Declassified E.O. 12356 Section 3.3/NND No. 785019

KWH PRODUCTION AND IMPORT ITALY



Declassified E.O. 12356 Section 3.3/NND No. 785019

XIX. APPLICATIONS FOR POWER SERVICE

Due to power being in short supply definite procedures were required in order to properly consider and screen requests. Excluding the military, the civilian requests were in two categories, namely:

1. Those which were sponsored by the Regions and Allied Commission, consisting of important industries and essential services for health and welfare in Allied Military Government (A.M.G.) territory.

2. Civilian requests for domestic, commercial and power service in territory turned back to the Italian Government control.

Category (1) requests were made in accordance with instruction letter dated 16 December 1944, EXHIBIT No. 6, Volume II.

Category (2) requests were made in accordance with instructions dated 19 March 1945, EXHIBIT No. 7, Volume II. Provincial Commissions and Advisory Committees referred to in this instruction are discussed elsewhere in this report.

Both of the above instruction letters were the result of experience in handling requests for electric service and provided the essential information required in order to determine priority and make the maximum and most economical use of the available power.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

XX - POWER RATIONING

Early in 1944 it became evident that economies in the use of electricity by all classes of consumers, including military, would be necessary in order to provide the electric power needed for military operations and essential civilian services.

As industries became reactivated and as certain industries were taken over by the military for the production of materials and supplies needed to carry on the war the amount that could be made available for civilian purposes became less. It was impossible to restore generating and transmission facilities at the same rate as the need for power arose.

Industries such as cement plants, steel works, repair shops for tanks and transport, installations manufacturing Bailey bridges, barges, dock and warehouse operations, electric railways, factories producing hemp products, knitted goods, food processing plants, water supplies, telephone communications, hospitals, and many other military and essential civilian services needed electric energy in order to carry on the war, make use of Italian resources and keep down disease and unrest among the civilian population. It was recognized that the more use that could be made of the production and transport facilities of Italy, the less would be the requirements from Allied Nations which were fighting a global war.

The generally accepted rule used was that if 35% to 40% of the generating and transmission facilities of an area were put back into operation they were sufficient to meet the military and essential civilian needs. This meant, however, that curtailment of non-essential civilian use was necessary. The military responsibility for restoring electric services was therefore set at 35% of pre-war. When that had been accomplished, any further rehabilitation was considered as a civilian need but not critical.

Experience proved that the only effective method of controlling the use of power was to discontinue the supply. While there was some compliance on rationing orders and decrees, still the civilian population resorted to all manner of means to use electric power. Utility companies therefore found it necessary in many instances to physically disconnect lines supplying customers for non-compliance. Where there was a high percentage of violations in a given area the service to the area was actually discontinued for certain periods of the day which had the desirable effect of inverting compliance.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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During the winter of 1944 the power being consumed in the Apulia area of Southern Italy was 25% above the allocated amount. It was necessary at that time to make provision for 6,000 KW of capacity for the reactivated Benevento Foggia electric railway. To meet this situation it was necessary to disconnect large areas of Apulia and through the medium of newspaper articles call the attention of the civilian population to the need for restricted use of electricity on the penalty of having that area disconnected from the power supply for certain periods of the day. By this means, it was possible within a

Declassified E.O. 12356 Section 3.3/NND No. 785019

period of 3 weeks to reduce the system load in Apulia by approximately 12,000 KW which was the amount needed to meet the situation. At the start large areas were disconnected and after 3 weeks it was possible to keep all circuits energized throughout the 24 hours due to the reduced power consumption.

Another method used was to stagger the rest days. Instead of the whole area taking Sunday as the rest day, the area was divided into 7 parts and each area took its rest day on a prescribed week day.

During the winter of 1944 Royal Decree No. 95 (EXHIBIT 8, Volume 2) known as "Regulations concerning the Limitation and the Consumption of Electric Energy" was prepared by the Electrical Division and the Italian Government and was made the law of basic authority on 5 April 1944 for all subsequent electric power rationing and control measures.

This decree provided for the establishment of Provincial Commissions in each Province under the Prefects and the establishment of a Central Commission at the seat of government to regulate and correlate the activities of the Provincial Commissions.

The decree also provided for the limitations of power consumption by civilian users in various categories and the penalties for non-compliance.

This decree was and still is the basis for the control of power consumption throughout Italy. As fast as areas in Italy were turned over to the control of the Italian Government the decree became effective.

Control in the use of power in the city of Rome required special treatment. Two companies operated within the city, one municipal and one privately owned, both of which had a complete system of underground cable distribution. Due to the very limited power supply available in Central Italy immediately after liberation, it was necessary to set up a system of preferential cables in order to insure service to military establishments, hospitals and essential civilian services. Rome normally required 115,000 KW of capacity, but for the first three months only 20,000 KW was available. For the rest of Rome, aside from the preference cables heretofore mentioned, the city was divided into 4 quadrants, referred to as "turnos" and service was provided to each quadrant for a period of 24 hours each, every fourth day. This condition existed for several months and as additional

Declassified E.O. 12356 Section 3.3/NND No. 785019

During the winter of 1944 Royal Decree No. 95 (EXHIBIT 8, Volume 2) known as "Regulations concerning the Limitation and the Consumption of Electric Energy" was prepared by the Electrical Division and the Italian Government and was made the law of basic authority on 5 April 1944 for all subsequent electric power rationing and control measures.

This decree provided for the establishment of Provincial Commissions in each Province under the Prefects and the establishment of a Central Commission at the seat of government to regulate and correlate the activities of the Provincial Commissions.

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It was necessary to continue the system of so-called preferential and non-preferential circuits throughout 1945 and was still required during the early months of 1946.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Due to the lack of artificial gas and other fuels for cooking and domestic heating, the electric domestic load reached unusual proportions especially in the winter months. North Italy experienced its highest system peaks in history during December 1945 and January 1946. This condition overloaded many cables and distribution transformers and necessitated the continued interruption of supply to large areas in order to not only reduce the load but avoid serious damage to cable and transformer equipment. This situation will not be remedied until the artificial gas supply is more regular and continuous and will probably continue throughout 1946.

The military, recognizing that it should take the lead, arranged to see that its own house was in proper order and to meet this situation Allied Force Headquarters issued its AG/675/171 GDS-O order dated 31 October 1944 (EXHIBIT 9, Volume 2) wherein stipulations were made regarding the use of electric power by military establishments, as well as by civilian establishments.

After the liberation of North Italy the amount of reservoir power available in that area was adequate to meet the need. However, during the month of October 1945, the rate of usage was such that it became apparent that control measures would have to be inaugurated in order to avoid emptying of the main reservoirs before the spring thaws and melting snows could replenish the water supply. The effect of the prolonged drought was becoming evident with the result that by the end of October the potential power in the reservoirs in North Italy were nearly 100,000,000 KWH below the 4 year average. At the rate of usage it was predicted that they would be entirely emptied by the latter part of February or early March 1946. Since the spring thaws and rains do not ordinarily begin until late April, North Italy was faced with the possibility of being practically without power for a period of at least two months. It was estimated that area would be short 1,000,000,000 KWH for the 5 months' period--December 1945 through April 1946, against a need of 4,000,000,000 KWH.

Therefore, in order to meet this situation an electric rationing Allied Military Government (A.M.G.) order was issued in December (EXHIBIT 10, Volume II). Arrangements were made to have the Italian Government continue these Allied Military Government orders in effect after 1 January 1946 when the territory was returned to Italian Government control.

The need for a coordinating agency in North Italy was also apparent and it was not until February 1946 that the Italian Government was prevailed upon to pass a decree appointing a commissioner for the control of electric power in the North with Headquarters in Milan.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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The first action of the new commissioner, on 15 February 1946, was to modify the December 1945 Allied Military Government (A.M.G.) order to meet the then existing conditions. (EXHIBIT No. 11, Volume II) His decree was much the same as the previous A.M.G. order with slight modifications.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Another step taken to meet the situation was bringing together all the companies and arrange to pool all the electric energy in order to insure power supplies to essential services in the whole area. The utility companies recognized the need and gave excellent cooperation.

In addition, it was necessary to place into operation the thermal plants in North Italy and to make arrangements for coal supplies. Normally, the thermal plants were not operated more than a month or two during the winter season, but in the present situation it was necessary to make arrangements for thermal production during the months of January, February, and March 1946. This was a difficult matter especially in view of the fact that coal supplies coming to Italy were limited and it was necessary to deny coal to certain industries in order to make it available for electric power production.

It was anticipated that the thermal plants would have to produce approximately 150,000,000 KWH depending upon the availability of coal. Actually, the thermal plants were only required to produce 80,000,000 KWH. The improvement was due primarily to the effectiveness of the rationing program, some increased rainfall, and warmer weather which resulted in a general decrease in seasonal load. During the last week in March 1946 all rationing and control measures on electric power were removed in North Italy with the exception of the use of electricity for the operation of electric boilers. The surcharge decree for thermal operation which provided for an increase in electric rates based on the operation of thermal stations was suspended effective as of 1 March, instead of the anticipated date 30 April, due to the discontinuance of thermal station operation. Details of the surcharge on thermal plant operation is discussed under the rate section of this report.

It is anticipated that electric power will be in short supply especially in Central and Southern Italy during 1946 and a part of 1947 and it will be necessary to continue rationing and control measures for at least that length of time.

The Italian Government, being aware of this condition, established a Regional Commission for Central and Southern Italy similar to the Commission which was established for North Italy, mentioned heretofore. The Lieutenant General's Decree, published in the 20 March 1946 issue of Gazzetta Ufficiale, and effective as of 1 March 1946 is included as EXHIBIT 12, Volume 2.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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This Decree sets forth the powers of the Regional Commissioner and continues in effect until 30 October 1946. The decree also provides for the appointment of Dr. Eng. Enea Virgili as Regional Commissioner. He is associated with the Italian State Railways and is considered an able and recognized administrator by the utility companies of Italy.

In addition, the rehabilitation of hydroelectric plants which are still under repair will require two to three years from 31 December 1945. This is especially true of some of the larger plants which were so thoroughly demolished that they had to be practically rebuilt from the ground up.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Probably the greatest relief to the electric situation in Italy would be the importation of sufficient coal to permit full time operation of the artificial gas plants and thereby relieve the electric power systems of the heavy load resulting from lack of other cooking and heating fuels.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

XXI - UTILITY RATES (COMPANIES)

Electric utility systems, gas and water companies, publicly and privately owned, were in serious difficulties, financial as well as operational. They began in desperation to ask for permission to increase charges to consumers. Realizing the impracticability of determining these, based on established principles during the existing unstable conditions, the following procedure was adopted:

(1) No changes were permitted in rates in effect in 1942.
(2) Companies were allowed to apply a temporary flat percent surcharge to the <u>total</u> amount of bills.
(3) The amount of the percentage surcharge was determined by a simple formula which only required an examination of the companies' "Profit and Loss" Statement, for recent billing periods.
(4) Only actual "out-of-pocket" expenses were allowed. No allowances were made for depreciation, amortization, interest, dividends, or the cost of repairs of war damage.
(5) Prior to expiration of the period for which the surcharge was authorized the companies could again apply and the matter was considered based on later factual data available.

The method followed was a temporary expedient, inasmuch as legitimate capital costs usually represented a considerable percentage of the total cost of furnishing utility service.

When economic conditions are more stabilized, the whole matter of these rates will have to be carefully studied by the Italian Government and new rates established for the various classifications, based on the actual cost of each, plus a reasonable return on capital investment, both the original and the cost of rehabilitation from war damage.

The Sub-Commission confined its approvals to 6 months' periods, thereby necessitating a resubmission by the companies for a new authority at the expiration of the period.

The procedure followed was an examination of original applications by the Sub-Commission and determination of appropriate surcharges for companies located in Allied Military Government (A.M.G.) territory. The Ministry of Public Works was then notified accordingly.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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The Sub-Commission dealt in detail with many applications from the companies to be allowed to increase their charges to consumers, varying from 100 to 500% above pre-war scales. Some were allowed, some reduced, and some disallowed. By the end of 1944 the detailed financial investigation work in Italian Government territory had been transferred to the Ministry of Public Works, assisted by an Inter-Ministerial Price Committee established under Royal Decree No. 347, dated 19 October 1944. The Sub-Commission retained certain general supervisory and advisory functions.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Shortly after North Italy was liberated a Price Control Board was established in Milan which handled all rate adjustment applications in Allied Military Government (A.M.G.) territory.

In order to provide uniformity of presentation, a set of instructions, EXHIBIT No 13 Volume II, was set up which provided the basic data needed in order to judge the surcharge that should be allowed.

The Inter-Ministerial Price Committee of the Italian Government followed the original recommendations of the Sub-Commission very closely in many cases. However, there were naturally some companies whose earnings were in such poor condition that further revisions had to be made largely because the previous surcharges were not sufficient to offset increasing operating costs.

In North Italy the shortage of hydro power, in the winter of 1945-46, required that the thermal plants be put into operation to provide additional KWH. Since the output of these plants would be utilized by various companies, the need for an equitable distribution of the added cost of thermal plant production was recognized.

Accordingly, Allied Military Government (A.M.G.) Regional Order No. 17 was promulgated and put into effect in December establishing a special surcharge to cover this item of expense. EXHIBIT No. 14, Volume II.

Briefly the order provided for a 30 centisimo charge for each KWH of energy consumed by each customer up to 15,000 KWH per month and 15 centisimo per KWH for all energy consumed per month in excess of 15,000 KWH. The drop in rate was to equalize the charge to large industrial consumers.

The money collected by the companies was sent to a special fund set up under the National Associations of Private and Public Distributors of Electric Power which in turn would make payment to the utility companies who were required to operate their thermal plants on the basis of energy delivered to the system by each thermal plant.

Under normal conditions the companies owning the thermal plants were only required to operate them for relatively short periods of time during extreme cold weather and then only to augment their own hydro power supply. In addition, the cost of coal used by these plants in past years was subsidized by the Italian Government.

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Declassified E.O. 12356 Section 3.3/NND No. 785019

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Since it was anticipated that the thermal plants would be required to operate to capacity for a period of five months (December through April 1945--46) and the output would be delivered to the Grid supplying all of North Italy, it was decided that all users connected to the Grid would be benefited by the thermal plant operation and should bear the excess cost. Handling the excess cost as a government subsidy would have placed the burden on all the tax payers of Italy.

Declassified E.O. 12356 Section 3.3/NND No. 785019

It was anticipated that the thermal plants would be called upon to produce 150,000,000 KWH during the 5 months' period, but due to extreme coal shortage and the effectiveness of the electric power rationing measures in North Italy, these plants were only used to produce approximately 80,000,000 KWH and were shut down in the early part of March 1946.

The Island of Sicily derives a considerable portion of its power from thermal plants and its pre-war rates were based on a fuel cost of 200 lire per ton of coal. In order to meet the increased cost of fuel the Utility was authorized to make a surcharge of 1.5 lire per KWH sold in order to offset the excess cost from thermal plant production. Any deficiency between the actual cost of coal (less 200 lire per ton included in the basic rates) and the amount collected from consumers is subsidized by the Italian Government.

The following representative percentage surcharges were in effect in March 1946 in the principal cities and areas of Italy for electricity, water and gas. Charges for thermal plant operation are not included:

	South Italy	Central Italy	North Italy
Electricity	350%	350%	200%
Water	250% (Naples)	385% (Rome)	500%
Gas	500% (Naples)	425% (Rome)	350%
	250% (Salerno)	600% (Florence)	
	200% (Bari)		

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

XXII - FINANCING UTILITY WAR DAMAGE

Financial problems confronting the companies were many. Large sums of money were needed for rehabilitation of plants, lines and equipment; there was pressure for increased wages by personnel to meet increased living costs; and there was severe loss of income, due to destruction of factories, rationing and movements of the civil population. In addition, the companies desired to hold their trained operating and administrative staffs on the payrolls in order not to lose their services since they would seek employment elsewhere if released.

To meet this situation and to provide necessary working capital, arrangements were made through the Ministry of Public Works, Ministry of Finance, and the Finance Sub-Commission of Allied Commission to set up procedures and controls, whereby funds to carry on rehabilitation and operations would be made available to the companies, who desired it.

Decree No. 367, dated 15 November 1944, was enacted for the purpose of providing advance funds, in the amount of 2,000,000,000 lire, for industrial rehabilitation. EXHIBIT No. 15, Volume 2, gives an extract of the pertinent points of this Decree.

Briefly, the Ministry of the Treasury was authorized to make advanced funds available to Institutes and guaranteed the payment of interest up to 3% for a period of 4 years. At the expiration of the 4 year period, if the advance had not been repaid, it would be converted into a loan.

On 15 November 1944, Decree no. 397, was enacted, EXHIBIT No. 16, Volume 2. Briefly, this Decree earmarked the sum of 500,000,000 lire, of the 2,000,000,000 lire authorized under Decree no. 367, for electric utility companies needing financial assistance. Utility companies would be permitted to secure advances up to 75% of the cost of a project to be rehabilitated.

No attempt is made here to go into the amount and types of loans made by various companies as it was not a function of the Public Works and Utilities Sub-Commission; however, mention is made of three companies as a matter of passing interest.

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Declassified E.O. 12356 Section 3.3/NND No. 785019

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The Solt Valderno Company states they have obtained a loan of 320,000,000 lire from the Istituto Imprese Pubblicie Utilita of Rome on the basis of a 30 year term, with interest at 6.6%.

The Terni Company, which is both electrical and industrial, states that they have obtained a loan of 950,000,000 lire from the Istituto Mobiliare Italiano.

The Azienda Comunale Elettricita e Acque (A.C.E.A.) of Rome obtained a short term loan in the amount of 100,000,000 lire from the Istituto St. Paolo of Turin in order to complete the rehabilitation of the Mandella, Castel Madama, Salisano and Tivoli plants. The loan is being sponsored by the Commune since the A.C.E.A. Co. is publicly owned.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Some companies arranged for loans through private banks as well. These were usually short term obligations.

Reconstruction of certain selected and more important plants and transmission lines was financed by the above means. Those selected contributed most to the war effort by providing power to military and to essential civilian services and industries. The time required to effect repairs was a major consideration. Those plants and facilities requiring long periods for rehabilitation were held in abeyance till the end of the war when they could be done entirely under civilian control.

The time will come when some form of financing will have to be arranged by the companies to refund these obligations so that they may be retired over a long period of time. The factors of depreciation and obsolescence of the original investments would have normally been taken care of in due time if no damage had occurred. However, damage to physical plants was, in the case of some companies, of such proportions that those companies cannot be expected to service new debts of this nature without some special treatment involving financing and rate structures. No company would have been expected to accumulate reserves in prior years to meet such a contingency as war, nor can sufficient earnings be realized to retire cash loans and interest for costs incurred in rehabilitation of plant facilities. The costs of rehabilitation were, and will be, at greatly increased capital outlay when compared to the original investments which were made on the basis of the pre-war value of the lira.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

XXIII - SUPPLIES

When the Central Electrical Board (Allied Armies in Italy--A.A.I.) was dissolved in July 1944, its activities were transferred to this Sub-Commission. A branch of it was concerned with supplies (materials).

The matter of supplies was difficult and varied and not only involved manufacture, location and procurement, but also movements, (road, rail and sea); preparing requisitions for imports; locating civilian stocks and arranging releases; obtaining and "screening" estimates of fuel (coal and oil), lubricants, transformer oil, tires, etc., consolidating the demands of the power companies and their subsidiaries for onward transmission; arranging for manufacture of electrical parts; supplying building material and cement for rebuilding power stations.

One of the most difficult problems was the procurement of insulating materials for rewinding transformers and alternators, which were out of operation due to war damage.

In the latter part of 1944 the power companies were asked to submit their 1945 plans for power station rehabilitation. These were carefully studied and large quantities of (import) materials were ordered. However, very little of this material ever arrived in the theater due to its not coming within the classification of a military requirement, but civilian instead. Also the war effort required most of this class of material to be used elsewhere with the result that insulating material needs were incorporated into the United Nations Relief and Rehabilitation Administration (U.N.R.R.A.) import supply program for 1946.

All companies in South and Central Italy providing utility services such as gas, water and electricity, were in a semi-paralyzed condition because of lack of transport. Even where they had a few vehicles left these had no tires, or they were in an almost worn-out condition. The daily life of the people depended on these utility services and the Armies required (at least) water and electricity. Repair works even on a minimum scale were continually delayed. Utility

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It can be definitely stated that the electrical rehabilitation work carried on in Italy up until the end of 1945 was done almost entirely with materials obtained from Italian sources. In addition, the companies saved every scrap of usable material which was recovered from damaged plants and other installations.

Scrap copper, for example, was taken to the wire drawing works, melted down, and fabricated into copper shapes and bars needed for rebuilding generators and transformers as well as for transmission lines.

Too much credit cannot be given to the utility company managers and engineers for their part in carrying out rehabilitation under the most difficult conditions.

Declassified E.O. 12356 Section 3.3/NND No. 785019

XXIV - SALE OF POWER BETWEEN ITALY AND FRANCE

Prior to the liberation of Northern Italy the enemy demolished French and Italian power plants in the Roia River Valley near the French and Italian border. The Italian plants "Airole" and "Bevera" in the "Tenda" area were destroyed in September of 1944 and the French plants "Fontan" and "Brevil" in the same area were destroyed in April 1945. The "Tenda" area is on the French and Italian border.

Later, when the enemy was being driven from Northern Italy by the Allies, in the spring of 1945, the French army moved into Italy and took over the "St. Dalmazzo" and "Confine" generating plants of the "Compagnia Imprese Elettriche Liguri C.I.E.L.I." of Italy. These plants were also located in the "Tenda" area. The power output from the Italian plants was then diverted to France which raised international complications.

Upon instructions from higher level, the Electrical Division of the Sub-Commission was directed to work out contractual arrangements between the French utility and the Italian utility.

Negotiations began in May 1945 and after several conferences between the French and Italian utility representatives attended and advised by officers of the Electrical Division, a formal agreement was reached on 20 July 1945 providing for the sale to the French of 5,000 KW of capacity until 30 June 1946. The contracts were prepared and signed in English, French and Italian and were then approved by the Italian and French Governments.

Continuation of the contract after 30 June 1946 will be subject to mutual agreement by both parties.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

XXV - REHABILITATION OF ELECTRIC GENERATING PLANTS

The rehabilitation of electric generating facilities, where such facilities were damaged, required the greatest effort and supervision of any activity carried on by the Division. Electric power generating plants are complex installations requiring large and heavy equipment, as well as delicate apparatus, all of which were designed and built for the particular installations. Such machinery and apparatus originally required many months to manufacture as well as to install. Consequently, the greatest effort was concentrated on that phase of rehabilitation in order to keep pace with transmission line and sub-station rehabilitation; also to provide the capacity to meet the increasing pressing demands for power for essential services.

As the war progressed through Sicily, Southern Italy and into Central and Northern Italy, the damage sustained became greater and greater as the enemy had more opportunity to plan and carry out organized demolition and destruction.

Experience proved that no matter how badly damaged an installation appeared to be from first observation, the actual damage could only be ascertained by clearing away the rubble and debris. In many cases, demolition charges were placed not only on the machinery, but on the building supports as well, so that when the charges were set off the building's walls and roofs were caused to fall in on top of everything left.

By gathering together parts of machines it was possible to prepare drawings and in turn fabricate patterns with which to prepare molds and pour new castings for machinery. Since most of the original machinery had been manufactured in Northern Italy, the detail drawings were not available until the North was liberated. In cases where plants had a number of identical units, parts of various machines would be found intact from which a whole machine could be reassembled. In some instances, generators or turbines from other plants with similar characteristics of head, speed and water volume were relocated. These operations were referred to as "cannibalization."

Until Northern Italy was liberated the foundry and machine shop facilities were limited to the "Terni" Steel works, the "M.A.T.E.R." works in Rome, and the Naval Meccanica and "Carradini" at Naples. None of these industrial plants had manufactured power plant equip-

Declassified E.O. 12356 Section 3.3/NND No. 785019

designed and built for the particular installations. Such machinery and apparatus originally required many months to manufacture as well as to install. Consequently, the greatest effort was concentrated on that phase of rehabilitation in order to keep pace with transmission line and sub-station rehabilitation; also to provide the capacity to meet the increasing pressing demands for power for essential services.

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Until Northern Italy was liberated the foundry and machine shop facilities were limited to the "Terni" Steel works, the "M.A.T.E.R." works in Rome, and the Naval Meccanica and "Corradini" at Naples. None of these industrial plants had manufactured power plant equipment before and they are to be commended for the manner in which they built the needed replacement parts.

In order to portray the chronological sequence of events with respect to generating plants, sets of tables, graphs and maps have been prepared and are made a part of this report. These are set up in accordance with the geographical areas which have been mentioned heretofore--namely, Sicily, Sardinia, Southern Italy, Central Italy and Northern Italy.

The series of maps, in 4 parts identified as EXHIBIT No. 23, Volume II, give the location of all plants in Italy. Each map has been divided into areas for location references used in EXHIBIT No. 17, Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

In order to portray the damage, the rehabilitation accomplished and yet to be completed, EXHIBIT No. 17, Volume II, sets forth the situation with respect to each plant of 2,000 KW capacity and larger with the exception of the Societa Idroelettrica Piemonte (S.I.P.), Edison, Societa Adriatica di Elettricita (S.A.D.E.) in Northern Italy. Only the damaged plants of these companies have been listed individually.

The plants are first grouped by companies, then by areas. The Italian State Railways are handled as a group by themselves. The final summary of EXHIBIT No. 17, Volume II, page 1, sets forth the situation for all of Italy and the Italian State Railways as of 31 December 1945.

The detail on each plant gives the original pre-war capacity, the month and year of liberation, the map reference giving the location on EXHIBIT No. 23, Volume II, the capacity available on liberation, the capacity restored and available on 31 December 1945, the capacity not restored on 31 December 1945 and the estimated year of restoration of that portion of each plant which has not been repaired. In some instances the companies do not intend to restore the full capacity of the pre-war installation as the original capacity was more than was needed. This was due to the installation of more efficient machinery as the years went by and the old original installations had not been removed. Also, in some cases, small individual plants will not be rehabilitated. The estimated year shown for the completion of those projects which are not yet finished is an approximation and may vary according to circumstances, but is reasonably accurate.

The statistics in EXHIBIT No. 17, Volume II, cover about 90% of the generating capacity connected to the power grids. The other 10% consists of numerous plants below 2,000 KW in capacity, small privately owned plants and isolated installations.

The graphs included in the following pages show the effect of the war on the generating capacity for each area giving the pre-war capacity, the damage and the restoration month by month progressively up to 31 December 1945. Estimated future rehabilitation is shown by years. There are graphs for Sardinia, Sicily, Southern Italy, Central Italy, Northern Italy and State Railways based on the statistics given in EXHIBIT No. 17, Volume II.

Summarizing the statistics of EXHIBIT No. 17, Volume II, page 1, the following results are obtained for all of Italy, including State

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Summarizing the statistics of EXHIBIT No. 17, Volume II, page 1, the following results are obtained for all of Italy, including State Railways:

	KW	Percent of Pre-War
(a) Original pre-war capacity including Italian State Railways	5,992,100	100%
(b) Capacity available on date of liberation (Note date of liberation varies)	4,263,990	71%

Declassified E.O. 12356 Section 3.3/NND No. 785019

	KW	Percent of Pre-War
(a) Capacity available on 31 December 1945	4,930,390	82%
(b) Unrepaired capacity on 31 December 1945.	1,061,710	18%
(c) Total capacity damaged or destroyed (a) minus (b)	1,728,110	29%
(f) Total capacity restored from date of liberation to 31 December 1945 (a) minus (b)	666,400	11%

The date of liberation referred to in the table above, of course, varies for different areas, the details of which are more clearly shown in the following graphs and in ANNEX No. 17, Volume II.

As will be shown in the details in the following table and on the following pages some areas were much more seriously affected than others.

The following table shows past and proposed future rehabilitation of electric generating plants in Italy by areas. The future rehabilitation is based on the present plans of the utility companies:

		Actual		Planned Future Rehabilitation		
UTILITIES	Pre-War Capacity in KW	Available on End of Liberation %	End of Year 1945 %	End of Year 1946 %	End of Year 1947 %	End of Year 1948 %
Sardinia	33,000	79	79	100	100	100
Sicily	86,000	44	62	81	100	100
Southern	409,500	42	63	78	95	96
Central	935,850	21	41	59	87	87
Northern	4,238,550	88	95	99.4	99.85	99.85
Sub-Total Utilities	5,749,600	74	83	91	97	97
Italian State Railways	242,500	57	58	64	76	100
Total Italy	5,992,100	72	82	90	97	98

Declassified E.O. 12356 Section 3.3/NND No. 785019

(f) Total capacity restored from date of liberation to 31 December 1945 (c) mines (b)	666,400	11%

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	Actual			Planned Future Rehabilitation		
UTILITIES	Pre-War Capacity in KW	Available on End of Liberation %	End of Year 1945 %	End of Year 1946 %	End of Year 1947 %	End of Year 1948 %
Sardinia	85,000	79	79	100	100	100
Sicily	86,900	44	62	81	100	100
Southern	409,500	42	63	78	95	96
Central	935,850	21	41	59	87	87
Northern	4,238,550	88	95	99.4	99.85	99.85
Sub-Total Utilities	5,749,800	74	83	91	97	97
Italian State Railways	242,500	57	58	64	76	100
Total Italy	5,992,300	72	82	90	97	98

As stated heretofore the above statistics include approximately 90% of the generating facilities of Italy.

Declassified E.O. 12356 Section 3.3/NND No. 785019

SARDINIA

Electric facilities in Sardinia escaped the severe damage that was experienced by other parts of Italy. The thermal plants in Cagliari Province suffered some damage from bombing. The steam plants, however, had begun to show the effect of lack of maintenance brought about by continued material shortages experienced throughout the war years. Quantities of needed supplies and repair materials were requisitioned and delivered. However, these plants are still partially out of operation awaiting parts from abroad. It is expected, however, that the two thermal plants will be back in operation during 1946 which, barring possible droughts, will place the electric utilities of Sardinia in a satisfactory condition.

The program in Sardinia with respect to the restoration of generating capacity is as follows:

	KW Name Plate Rating	Percent of Pre-war
(a) Original pre-war capacity	88,800	100%
(b) Capacity available on liberation	70,000	79%
(c) Capacity available 31 December 1945	70,000	79%
(d) Unrepaired capacity 31 December 1945	18,800	21%
(e) Total capacity damaged (a) minus (b)	18,800	21%
(f) Total capacity restored from date of liberation to 31 Dec. (c) minus (b)	None	

The attached chart sets forth in graphical form the damage and rehabilitation program.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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The attached chart sets forth in graphical form the damage and rehabilitation program.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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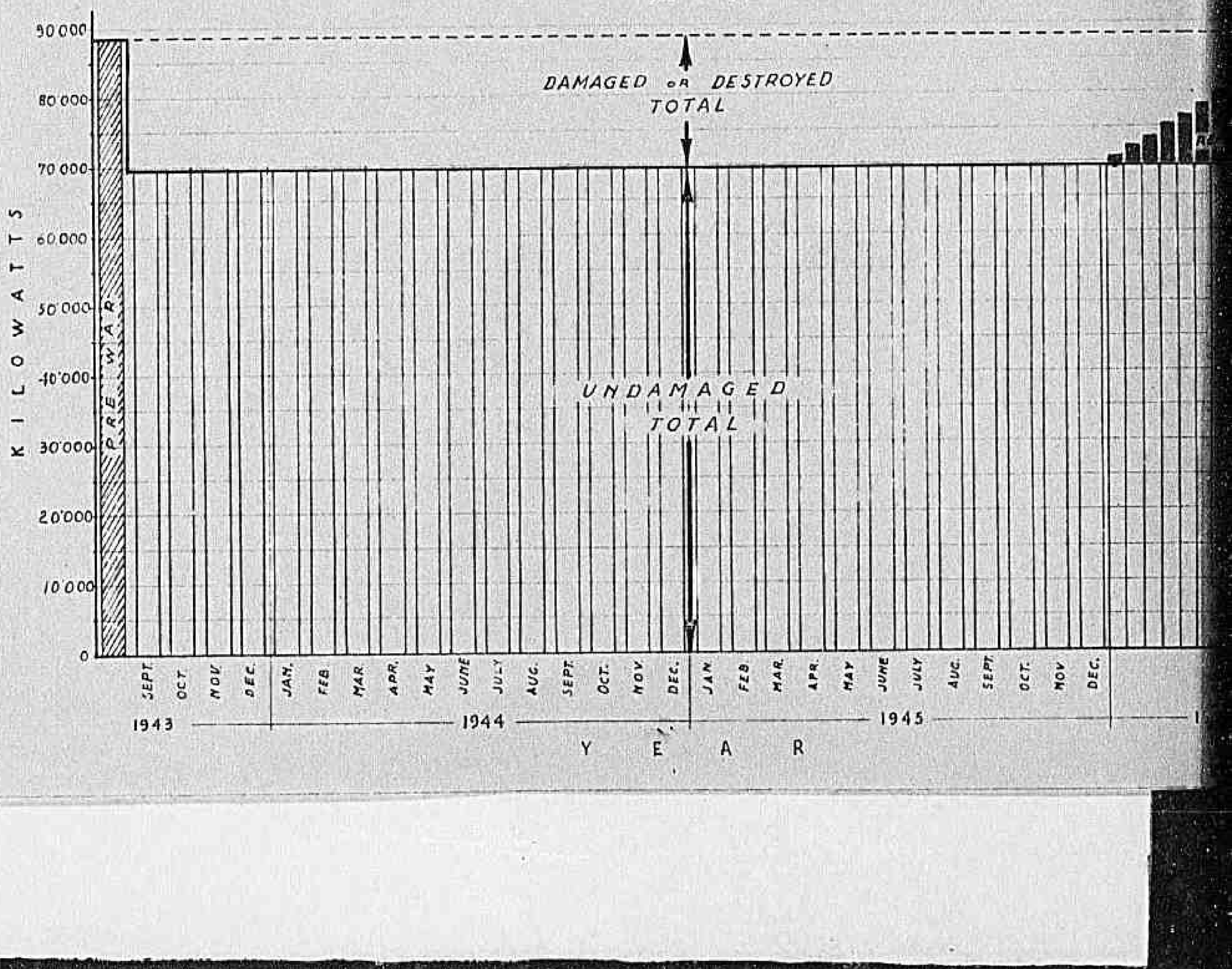
ELECTRIC POWER PLANTS SARDINIA

Pre-war installed capacity, damaged, and rehabilitation schedul
in KW



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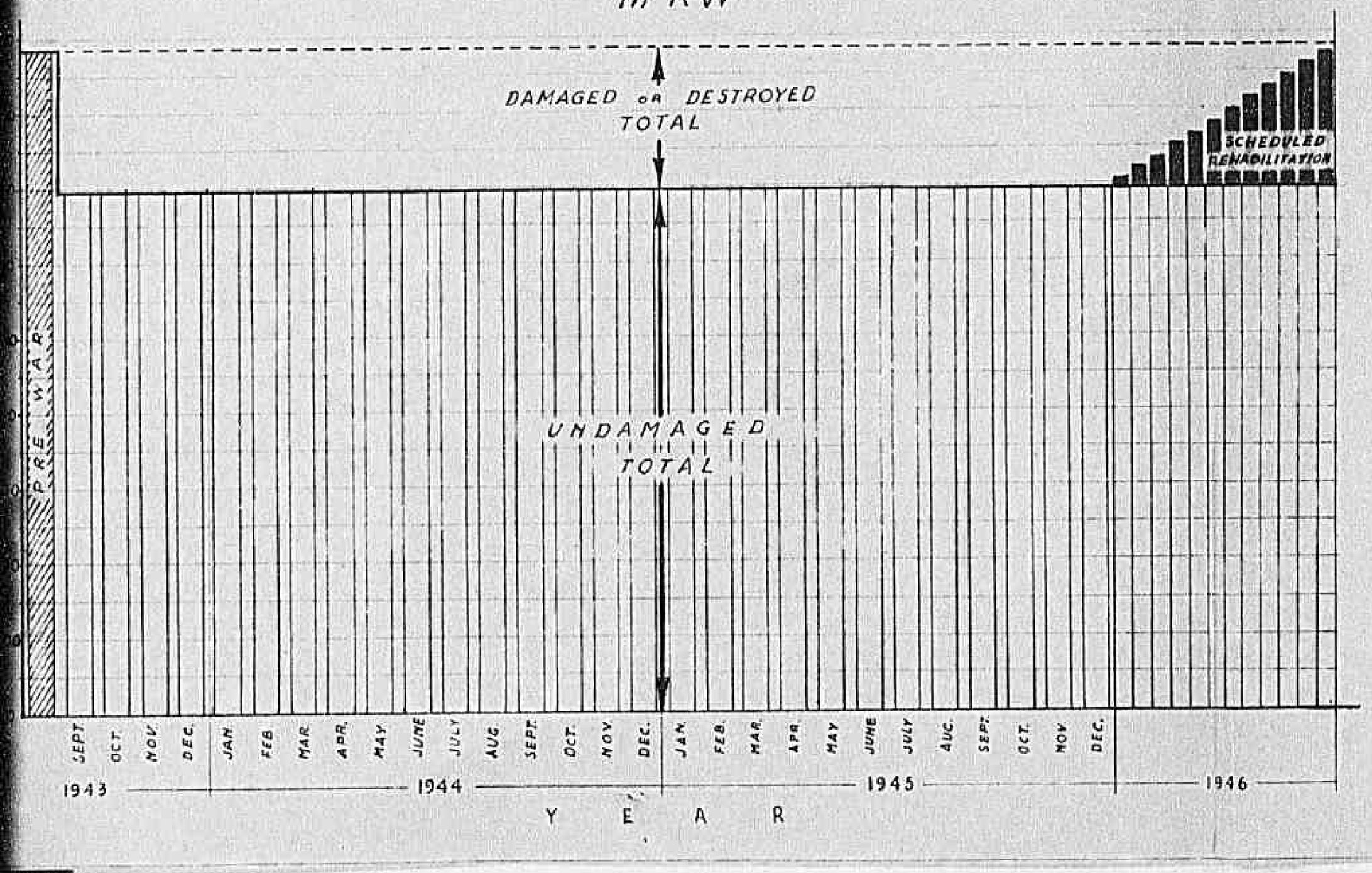

SICILY

In recent years Sicily had confined its power development to hydroelectric projects. The original supplies were obtained from thermal stations utilizing coal, the principal ones being located in Palermo, Catania, and Porto Empedocle. These plants were old and in a bad state of repair from lack of maintenance at the time of liberation. Considerable damage also resulted from shell fire and bombing. Due to combat operations much of the transmission system had been severely damaged which necessitated the thermal plant operation since the hydro plants were mostly located in the interior. Repairs of an emergency nature were made to the thermal stations in order to supply power for port facilities and essential civilian services. Some of this work has extended over a period of 30 months.

As a result of the shortage and the difficulty of operating the inefficient steam plants, it was necessary to severely ration electric power. Even when the transmission systems were restored in order to utilize the power from the hydro plants, the drought conditions still necessitated that rationing of power be continued. Actually, the Island of Sicily will still be short of power after all restoration is completed as prior to liberation the utilities had more potential demand than installed generating capacity to meet it. They will either have to develop further hydro projects or build thermal stations. The most economical hydro potentialities have already been exploited. At the present time consideration is being given to a modern steam plant using Sardinian coal and to a transmission line interconnection between the Island and the mainland across the Messina Straights. This interconnection will be designed to operate at 150,000 volts ultimately.

The program in Sicily with respect to the restoration of generating capacity taken from EXHIBIT No. 17, Volume II, page 1, is as follows:

	KW Name Plate Rating	Percent of Pre-war
(a) Original pre-war capacity	86,900	100%
(b) Capacity available on date of liberation	38,150	44%
(c) Capacity available on 31 December 1945	54,150	62%

Declassified E.O. 12356 Section 3.3/NND No. 785019

system had been severely damaged which necessitated the thermal plant operation since the hydro plants were mostly located in the interior. Repairs of an emergency nature were made to the thermal stations in order to supply power for port facilities and essential civilian services. Some of this work has extended over a period of 30 months.

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The program in Sicily with respect to the restoration of generating capacity taken from [redacted] No. 17, Volume II, page 1, is as follows:

	KW Name Plate Rating	Percent of Pre-war
(a) Original pre-war capacity	86,900	100%
(b) Capacity available on date of liberation	38,150	44%
(c) Capacity available on 31 December 1945	54,150	62%
(d) Unrepaired capacity on 31 December 1945	32,750	38%
(e) Total capacity damaged or destroyed, (a) minus (b)	48,750	56%
(f) Total capacity restored from date of liberation to 31 December 1945, (c) minus (b)	16,000	18%

Declassified E.O. 12356 Section 3.3/NND No. 785019

The attached chart sets forth in graphical form the situation on plant rehabilitation from the date of liberation and month by month thereafter. It is not expected that all rehabilitation will be completed until the year 1947.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

ELECTRIC POWER PLANTS SICILY

Pre-war installed capacity, damaged, and rehabilitation sched
in KW

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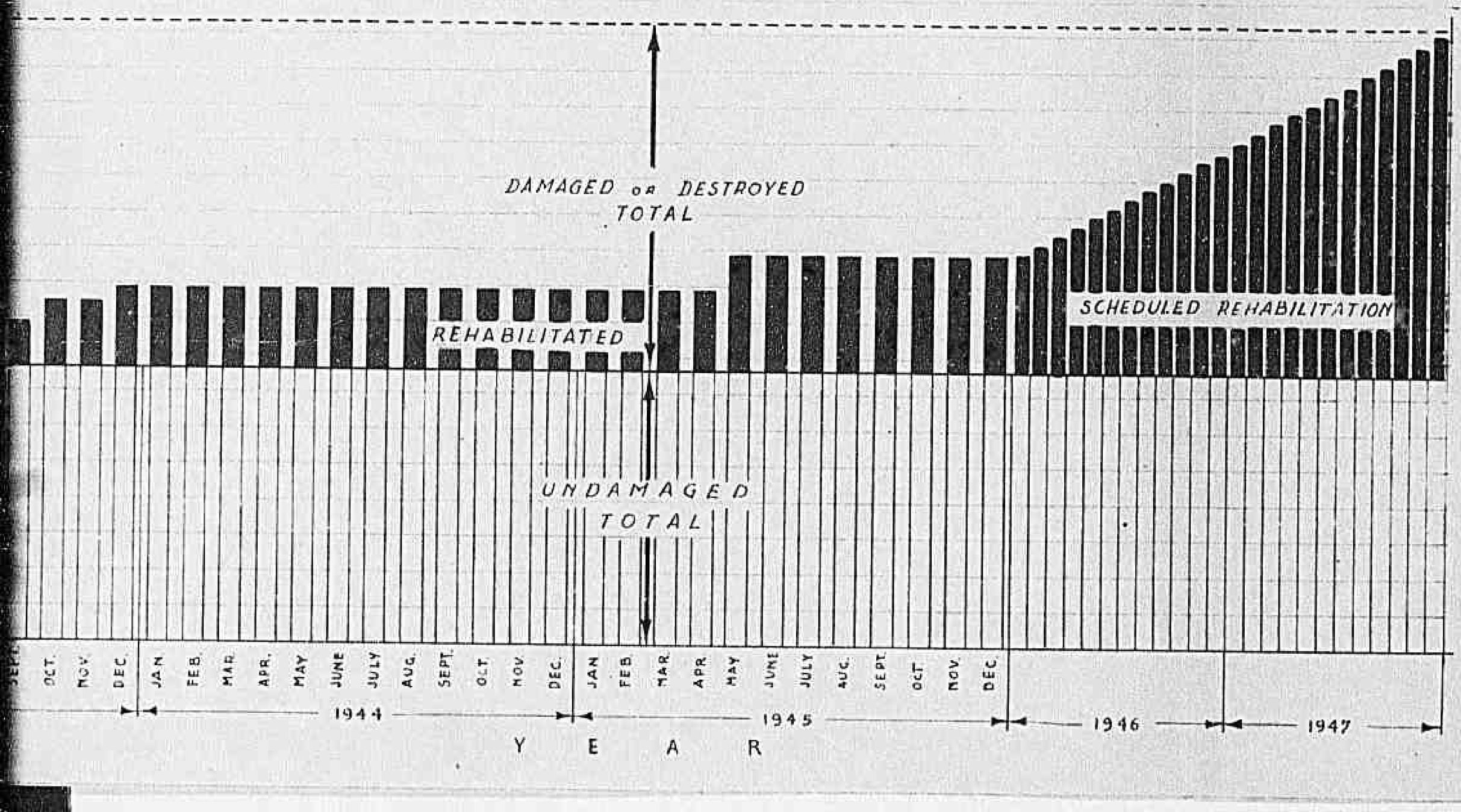
ELECTRIC POWER PLANTS SICILY

Pre-war installed capacity, damaged, and rehabilitation schedule in KW



SOUTHERN ITALY

Southern Italy has a story concerning undamaged plants that has not yet been satisfactorily explained up to the present time since the real facts have not yet been established. In the Sila Mountains (Calabria) there are three hydroelectric generating plants known as the "Sila group" situated in a mountainous rugged section of the country. Their capacity totals 170,000 KW and were only slightly damaged. Repairs were effected shortly after the enemy was driven from the territory.

Enemy failure to demolish the Sila plants contributed in a large way to the success of Allied military operations up the Italian peninsula. The saving of this large installation from destruction may have been the result of the speed with which the Allied forces conquered Southern Italy. This probably prevented the enemy from placing mines and demolition charges which require time to prepare in order to accomplish effective damage.

The main 150,000 volt transmission system for Southern Italy was restored to service within a few months which permitted the utilization of the Sila power in most of Southern Italy. See part 4, EXHIBIT No. 22, Volume II). Shortly after Naples fell in the autumn of 1943, emergency power was obtained from two Italian submarines found in the harbor and from one of the diesel units at the Volturno plant which was found to be practically undamaged. These plants produced enough power to get part of the water system operating and to supply power to other essential services until the transmission lines serving the city were repaired.

The 45,000 KW Capuena steam plant at Naples was thoroughly mined by the enemy, but employees of the company were able to remove some of the detonator wires and charges before they were set off with the result that only portions of the machinery in the plant were damaged. Only one of the 6 boilers was destroyed. Repairs were started immediately under the direction of the Royal Navy and the first unit of 15,000 KW was placed in service in March 1944. The second unit of 15,000 KW began operating in July 1944, and the third of 15,000 KW was restored in December 1944. The output of this plant was required until the spring of 1946, at which time it was shut down. It will be maintained in operating condition for emergency and peaking purposes.

Since the main source of supply for Southern Italy was the "Sila Group," a close check was maintained on the water levels in the storage reservoirs and a day by day comparison was maintained with corresponding periods for preceding years. These records provided the basis for determining power allocations and the degree of rationing

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Since the main source of supply for Southern Italy was the "Sila Group" a close check was maintained on the water levels in the storage reservoirs and a day by day comparison was maintained with corresponding periods for preceding years. These records provided the basis for determining power allocations and the degree of rationing required. The filling period normally starts in December and continues until April. Under normal pre-war conditions Southern Italy's summer power deficiencies were made up from power imported from the North. Since this was not available due to damage plants and transmission lines, the accumulated storage had to be spread over the summer months. The year 1945 was the most critical experienced due

Declassified E.O. 12356 Section 3.3/NND No. 785019

to the drought and increased usage. During the latter part of November 1945 the storage dropped to less than 30,000,000 KWH which was equivalent to only one-half month's supply. Rains started when the storage reached 28,000,000 KWH.

The damage and program of rehabilitation for Southern Italy taken from the tabulation EXHIBIT No. 17, Volume II, page 1, are as follows:

	KW Name Plate Rating	Percent of Pre-War
(a) Original pre-war capacity	409,500	100%
(b) Capacity available on liberation (Note: This date varies by areas)	173,300	42%
(c) Capacity available on 31 December 1945	258,850	63%
(d) Unrepaired capacity on 31 December 1945	150,650	37%
(e) Total capacity damaged (a) minus (b)	236,200	58%
(f) Total capacity restored from date of liberation (c) minus (b)	85,550	21%

The attached chart shows, in graphical form, the periods of damage and restoration from September 1943 to 31 December 1945. Since the campaign extended from September 1943 to May and June 1944, there is the rather odd situation of some restoration followed by further damage at a later date. The large amount of destruction shown for May 1944 represents the Pescara plants which were blown up at that time.

It is not expected to complete the major rehabilitation of Southern Italy plants before the year 1948. The small amount shown as the

Declassified E.O. 12356 Section 3.3/NND No. 785019

from the tabulation EXHIBIT No. 17, Volume II, page 1, are as follows:

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It is not expected to complete the major rehabilitation of Southern Italy plants before the year 1948. The small amount shown as unfinished at that time will probably not be repaired according to the utility officials.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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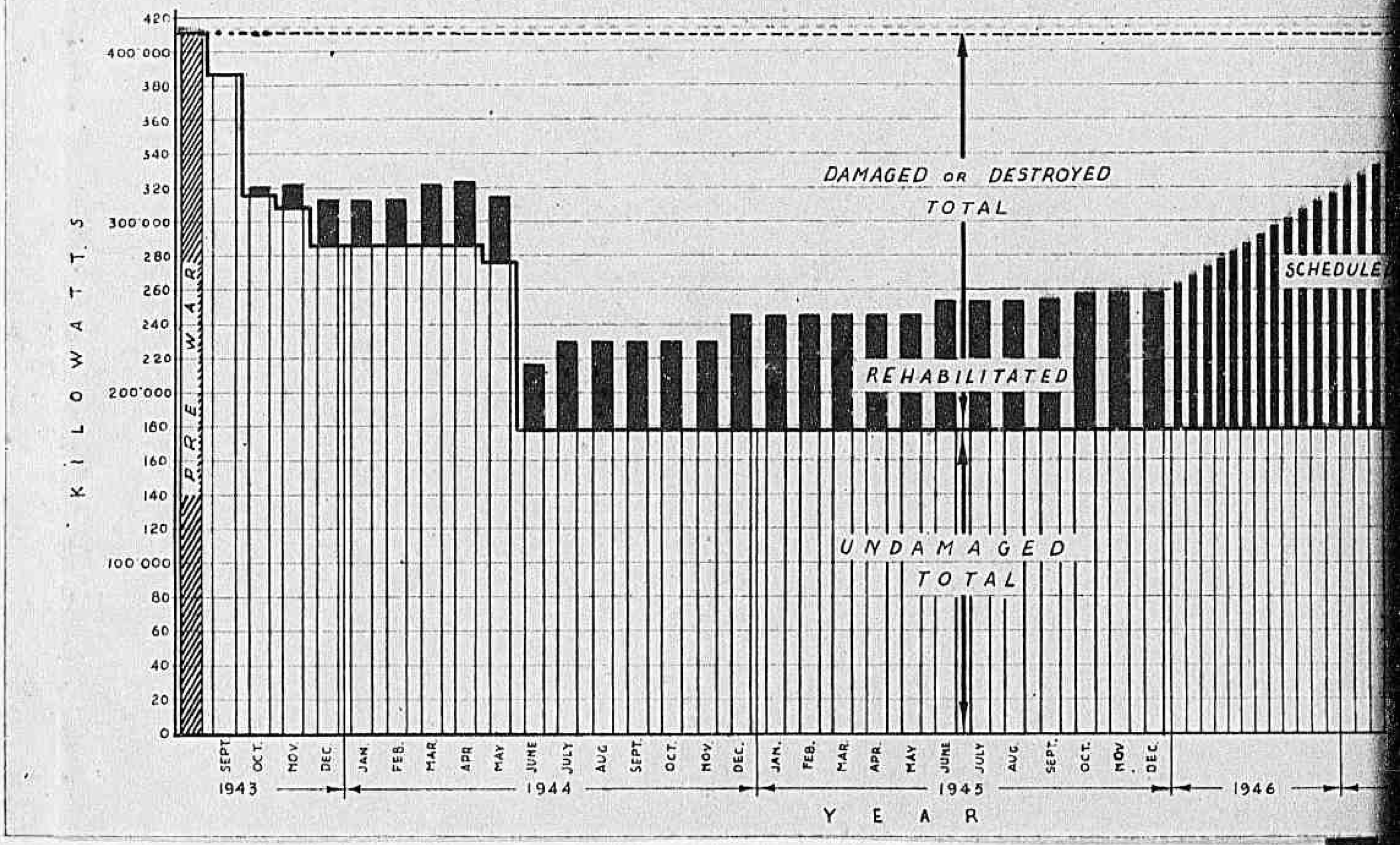
ELECTRIC POWER PLANTS SOUTHERN ITALY

Pre-war installed capacity, damaged, and rehabilitation schedu
in KW



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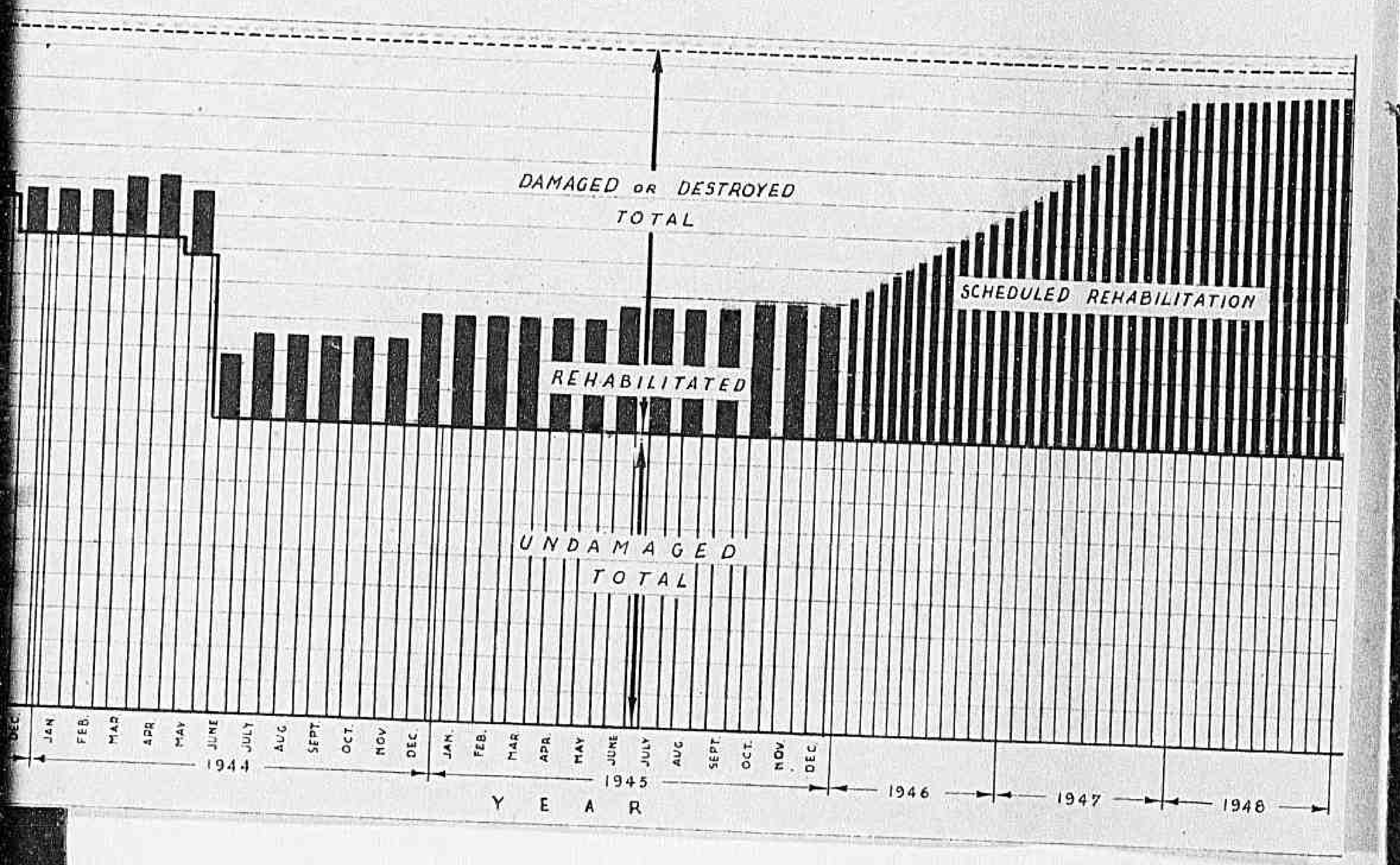
ELECTRIC POWER PLANTS SOUTHERN ITALY

Pre-war installed capacity, damaged, and rehabilitation schedule in KW



CENTRAL ITALY

During the autumn of 1943 and winter of 1944, in which period the combat line was moving forward slowly, the enemy was able to arrange and put into effect a planned program of demolition of electric generating facilities in Central Italy.

More extensive demolition, however, could have been carried out by the enemy especially at the larger plants. Their intention was to cripple them sufficiently to require at least two years for restoration. A specific case was the Galleto plant near Terni with a capacity of 140,000 KW. With intensive effort the first 35,000 KW unit was put back into operation within 6 months, the second machine within 10 months, the third machine within 14 months, and the fourth machine within 18 months. Other scattered plants of various sizes were also restored to service during the same period.

At the time of liberation of Rome and the surrounding Provinces only 90,000 KW of generating capacity was found to be in operating condition and of this amount 40,000 KW was represented by two stand-by thermal plants located in the city of Rome. These plants had previously been used only for emergency service and had not been maintained in good operating condition. Further, they had not been designed for continuous operation. Only 12 days' fuel supply was available at the start and it was necessary to haul coal at the rate of 250 tons a day in military and civilian trucks from miscellaneous stockpiles scattered over all the area. Diesel engine fuel and oil for the oil fired boilers were hauled by truck from Naples and Anzio. Railway service from Naples to Rome was resumed on 4 July, 30 days after liberation, and the fuel problem became less critical; however, it was necessary to operate the Rome thermal plants continuously until January 1945 and for peak load and emergency service all during 1945 and early 1946.

The Electrical Division, in consultation with the power company officials operating in the area, prepared a program of rehabilitation of plants and transmission lines with special emphasis on those installations which could be restored to service in the quickest possible time.

The situation in Central Italy was without question the worst, and can best be appreciated by reference to the graph on Central Italy immediately following. The excellent teamwork of the Utility companies and the assistance given by all the military Engineering and supply services warrant special mention and commendation.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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The damage and program of rehabilitation for Central Italy from page 1, EXHIBIT No. 17, Volume II, are as follows:

	KW Name Plate Rating	Percent of Pre-War
(a) Original pre-war capacity	935,850	100%
(b) Capacity available on liberation	103,240	11%

Declassified E.O. 12356 Section 3.3/NND No. 785019

	KW Name Plate Rating	Percent of Pre-War
(c) Capacity available on 31 December 1945	384,840	41%
(d) Unrepaired capacity on 31 December 1945	551,010	59%
(e) Total capacity damaged (a) minus (b)	832,610	89%
(f) Total capacity restored from date of liberation (c) minus (b)	281,600	30%

The attached chart shows in graphical form the periods of damage and restoration from June 1944 to the end of December 1945. The damage which occurred in August and September of 1944 represents a number of plants at the Valdarno Company furnishing power in the Florence and Leghorn areas.

The chart also reflects clearly the problem of rehabilitation which has been experienced in Central Italy. It is sufficient to say that it has been a slow and difficult task beset with many obstacles. No attempt will be made to go into details except to say there were many.

It is not expected to complete the rehabilitation of the generating plants of Central Italy before the end of 1948. The rehabilitation shown unfinished in that year will probably not be repaired according to present plans of the Utility companies as it represents small plants and old equipment which were put out of commission and which had already been replaced by more modern machinery in past years. The later installed machinery, of course, has been or will be replaced.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

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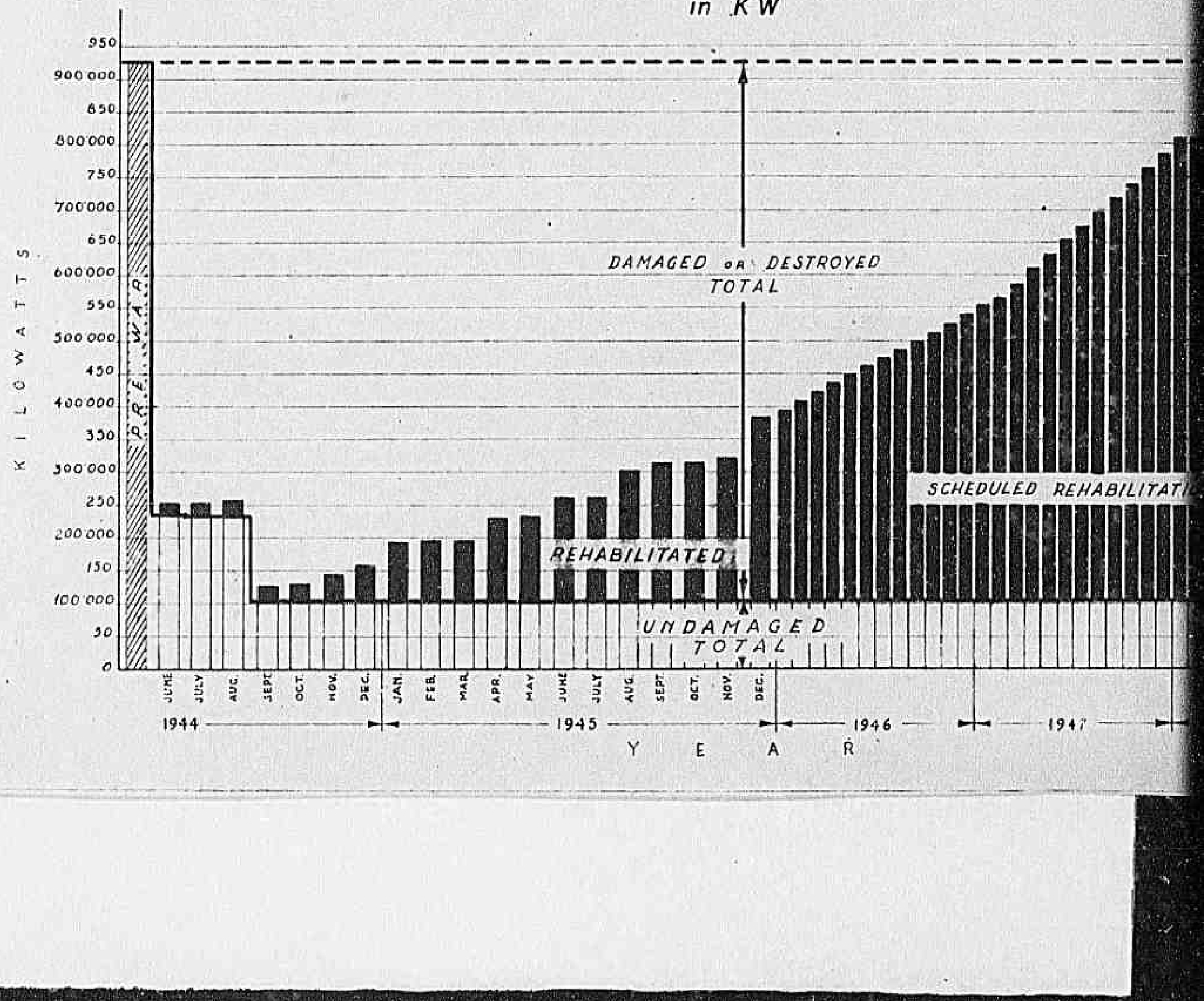
Declassified E.O. 12356 Section 3.3/NND No. 785019

ELECTRIC POWER PLANTS CENTRAL ITALY

Pre-war installed capacity, damaged, and rehabilitation schedu

in KW



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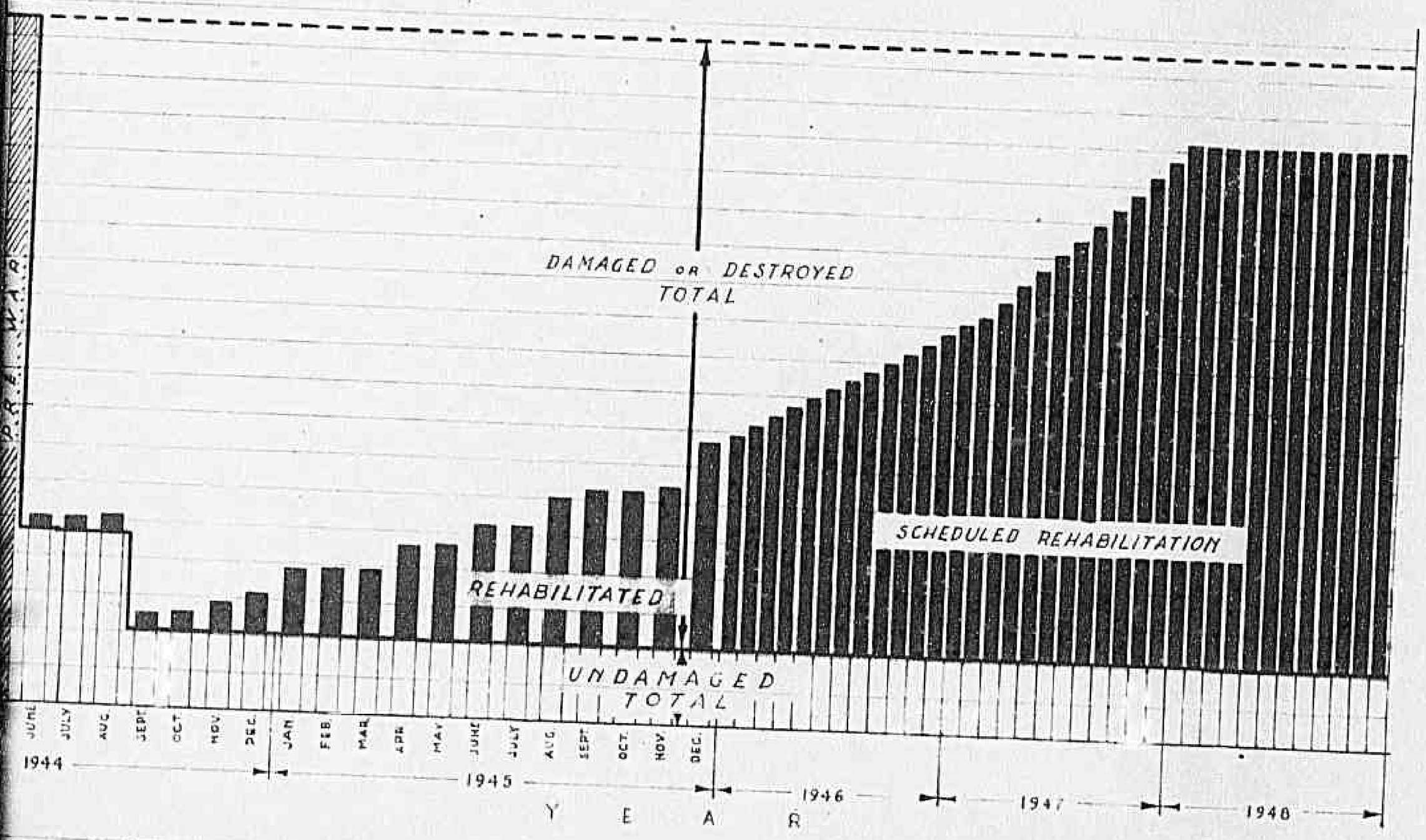
Declassified E.O. 12356 Section 3.3/NND No. 785019

ELECTRIC POWER PLANTS CENTRAL ITALY

Pre-war installed capacity, damaged, and rehabilitation schedule in KW



NORTHERN ITALY

The Northern Italy electric generating plants escaped the damage which was experienced in other parts of Italy. Partisan activity and the speed with which the enemy capitulated avoided what would have otherwise been a catastrophe had the program of destruction and demolition which other parts of Italy experienced been carried out in this highly industrialized area.

In planning for the power supplies of Northern Italy prior to the liberation, several schemes were in the process of development, namely Partisan activity, counter-scorching, importation of mobile and floating power plant equipment and reinforcement and enlargement of the interconnections between Switzerland and Italy. After the North fell and a quick survey showed that only about 11% of the 4,226,550 KW of pre-war capacity had been put out of commission, the planned emergency measures were dropped.

The damage to some plants was slight so that by 31 December 1945 only 5% remained unrepaired.

Summarizing the statistics on Volume II, page 1, the following results are obtained for Northern Italy:

	KW	Percent of Pre-war
(a) Original pre-war capacity	4,223,550	100%
(b) Capacity on date of liberation	3,741,800	88%
(c) Capacity available on 31 December 1945	4,220,050	95%
(d) Unrepaired capacity on 31 December 1945	206,500	5%
(e) Total capacity damaged or destroyed (a) minus (b)	486,750	12%
(f) The total capacity restored from date of liberation from 31 December 1945 (c) minus (b)	228,250	7%

The attached chart shows in graphic form the periods of damage and restoration extending from September 1944 to 31 December 1945. This

Declassified E.O. 12356 Section 3.3/NND No. 785019

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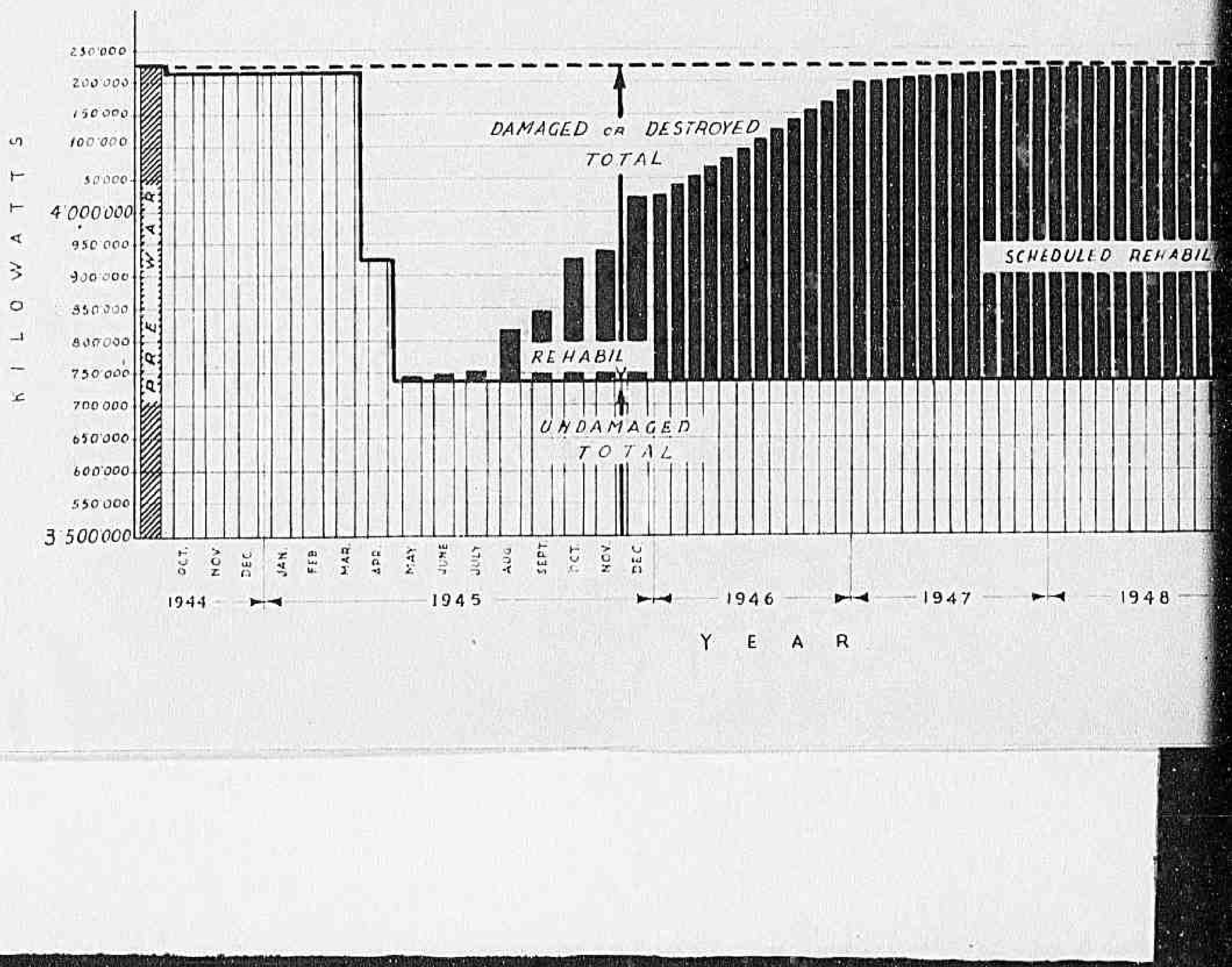
The attached chart shows in graphic form the periods of damage and restoration extending from September 1944 to 31 December 1945. This chart indicates that most of the restoration will have been completed by the end of 1946.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

ELECTRIC POWER PLANTS NORTHERN ITALY

Pre-war installed capacity, damaged, and rehabilitation schedule in KW



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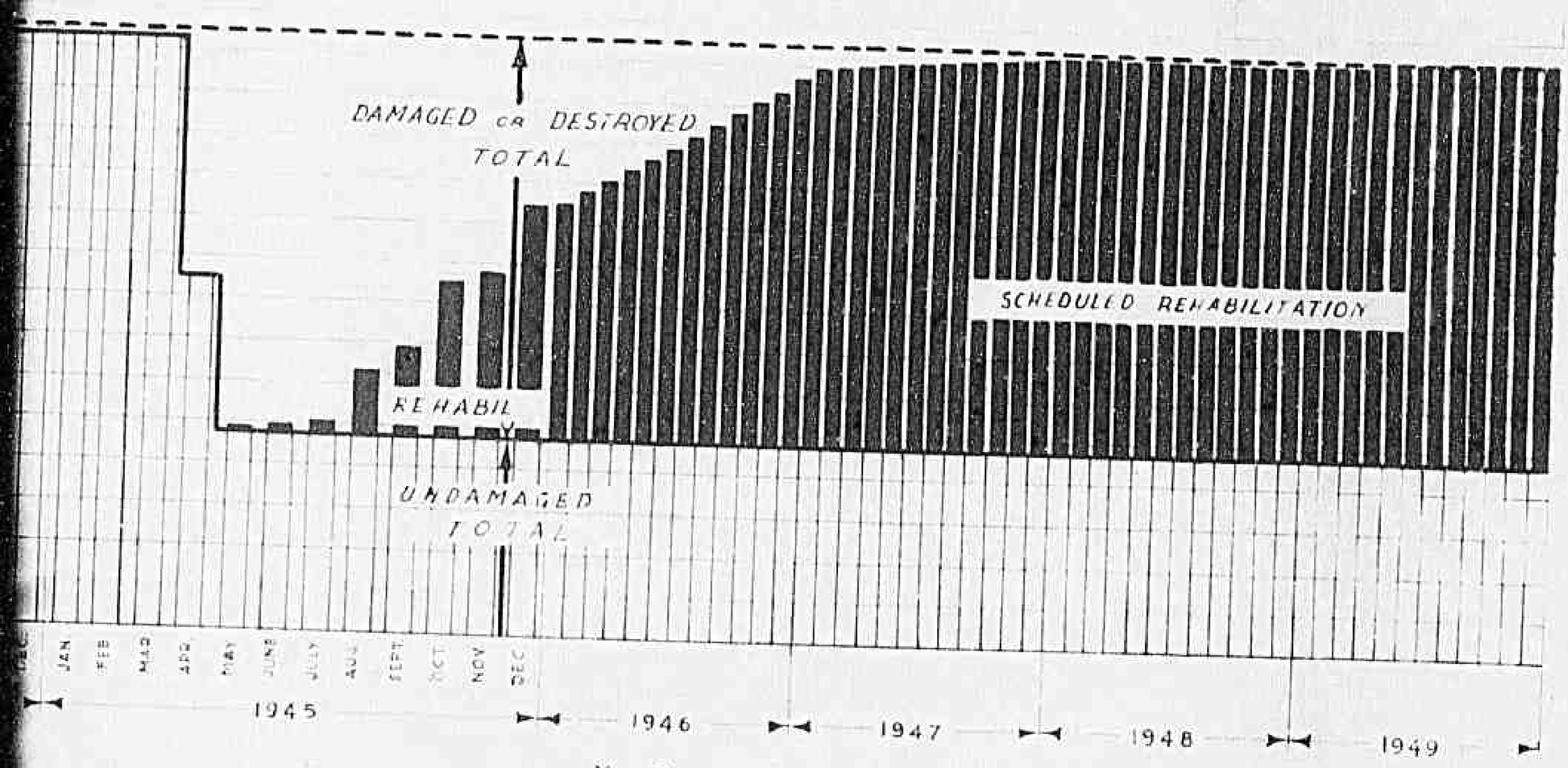
ELECTRIC POWER PLANTS NORTHERN ITALY

Pre-war installed capacity, damaged, and rehabilitation schedule in KW



ITALIAN STATE RAILWAYS

In order to provide a more complete picture of electric power facilities, it has been deemed proper to include in this report the generating and transmission facilities of the Italian State Railways. Since the armies were equipped with steam locomotives, the need for urgent rehabilitation of the railroad generating facilities was not so great. However, in some instances it was determined that the restoration of certain generating plants belonging to the State Railways was possible and could be utilized to augment the power capacity in some areas where the plants of utility companies would require a longer time to rehabilitate. The same is true with respect to certain of the transmission lines, although the enemy purposely damaged many of the transmission towers and structures to render them inoperative and also removed much of the copper catenary circuits for the copper metal.

One of the principal power sources of the Italian State Railways were the Larderello natural steam plants, although not wholly the property of the Italian State Railways, the railways did derive a considerable amount of its power from this source. Rather than make any division of the output of this plant, it has been deemed expedient for this report to include the total capacity of the Larderello plants in the statistics on Central Italy generating plants. The Larderello and Castel Nuovo natural steam plants were completely wrecked. The total capacity of these plants was about 139,000 KW, of which none was found to be in operating condition upon liberation.

The damage and program of rehabilitation for the Italian State Railways taken from the tabulation, EXHIBIT No. 17, Volume II, page 1, are as follows:

	KW Name Plate Rating	Percent of Pre-war
(a) Original pre-war capacity	242,500	100%
(b) Capacity available on liberation	138,500	57%
(c) Capacity available on 31 December 1945	140,500	58%
(d) Repaired capacity on 31 December 1945	102,000	42%
(e) Total capacity damaged (a) minus		

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(c) Capacity available on 31 December 1945	140,500	58%
(d) Repaired capacity on 31 December 1945	102,000	42%
(e) Total capacity damaged (a) minus (b)	104,000	43%
(f) Total capacity restored from date of liberation (c) minus (b)	2,000	1%

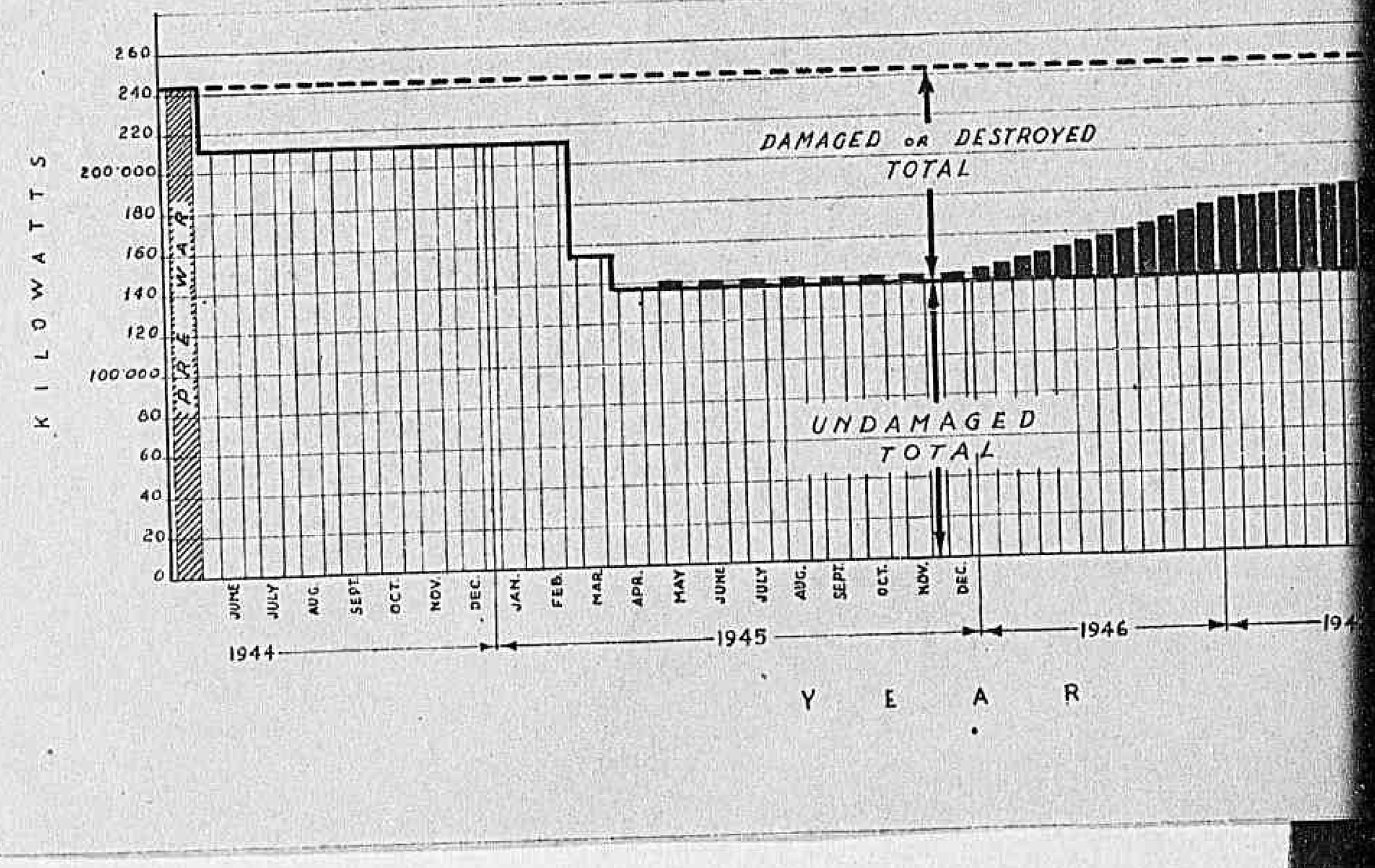
The attached chart shows, in graphical form, the periods of damage and restoration extending from June 1944 to the end of December 1945. This chart indicates that most of the restoration will have been completed by 1948.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

ELECTRIC POWER PLANTS - STATE RAILWAYS -

Pre-war installed capacity, damaged, and rehabilitation in KW



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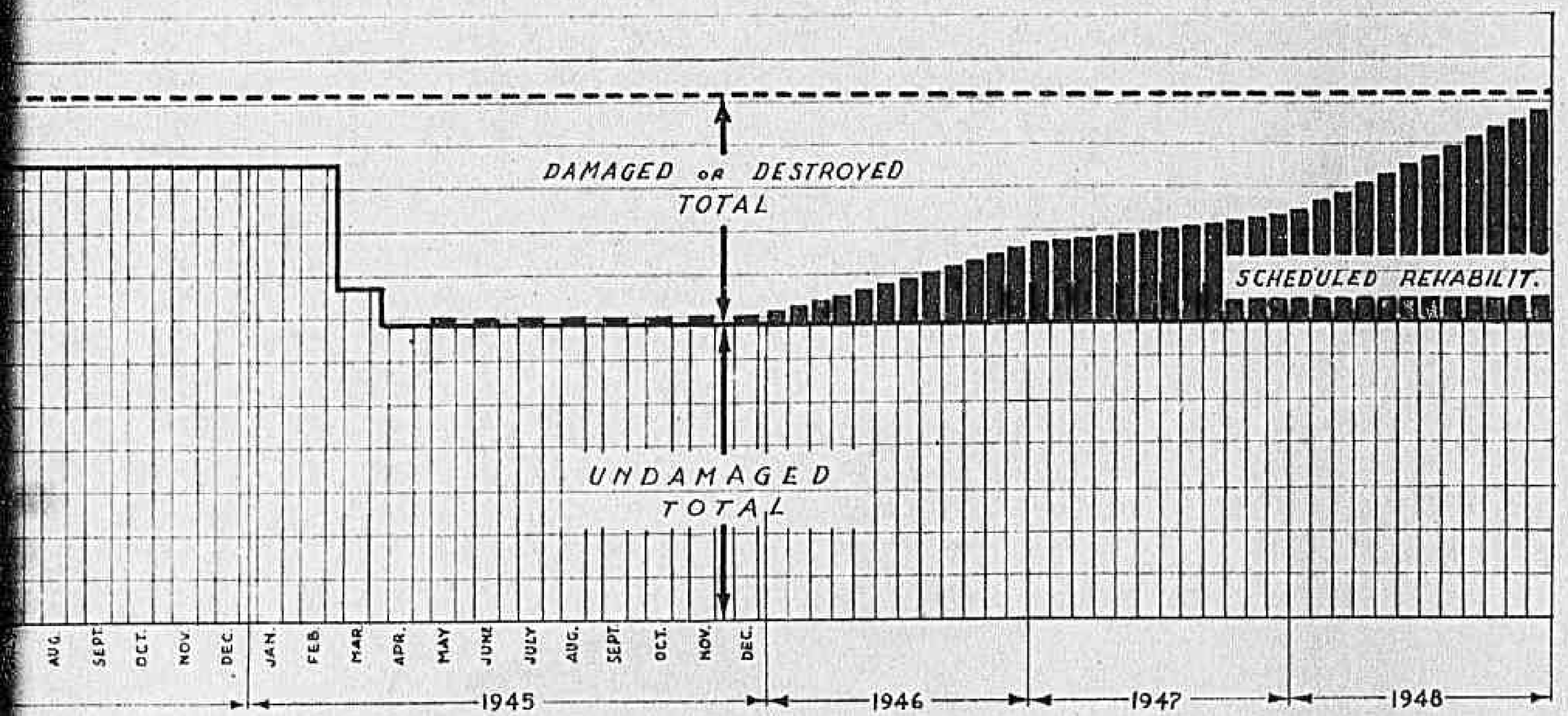
Declassified E.O. 12356 Section 3.3/NND No. 785019

ELECTRIC POWER PLANTS - STATE RAILWAYS - ITALY

Pre-war installed capacity, damaged, and rehabilitation schedule in KW



XXVI - REHABILITATION OF SUB-STATION FACILITIES

The relation of sub-stations to the generation and transmission of electric power warrents their being given consideration in this report. Since the transformer units themselves are the largest and most important piece of equipment in a sub-station and necessary to deliver or take power from the transmission systems they, for the purposes of this report, have been used as the measure of damage and progress of rehabilitation in this category of power system equipment.

In order to get damaged sub-stations into operation it was necessary to use undamaged parts from other sub-stations such as switches, buss structures and control apparatus. Spare transformers were relocated as well as undamaged transformer units from other locations which were out of operation either due to damage to the structures or to the transmission lines with which they were connected. There was also interchange in cases where one company had idle undamaged transformers with required characteristics that could be used by other companies.

The following are examples of the relocation of sub-station transformers to meet load conditions:

(a) A 10,000 KVA 150,000 volt transformer was moved from Bari to the Sila generating stations, in Southern Italy, in order to increase the output of those plants. It was necessary to arrange for a special deep well rail car to handle this unit.

(b) Another case was the relocation of a 10,000 KVA transformer--150,000 volts to 60,000 volts from Feroleto to Tusciano. Here again it was necessary to use special rail car equipment and rebuild road track and a bridge in order to get the transformer to its new location. The power supply to the Naples area was increased as a result of this move.

In many instances in Central Italy use was made of large tank transport trailers and tractors to move transformer equipment to various locations where they could be utilized to the best advantage.

As a result of this shifting of equipment, much of it temporary, no attempt has been made to list sub-stations separately.

Accordingly, EXHIBIT No. 18, Volume II, sets forth the situation with respect to the sub-station transformers of 30,000 volts and above located at generating stations and in the principal trans-

Declassified E.O. 12356 Section 3.3/NND No. 785019

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(b) Another case was the relocation of a 10,000 KVA transformer--150,000 volts to 60,000 volts from Feroleto to Tusciano. Here again it was necessary to use special rail car equipment and rebuild road track and a bridge in order to get the transformer to its new location. The power supply to the Naples area was increased as a result of this move.

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Accordingly, EXHIBIT No. 18, Volume II, sets forth the situation with respect to the sub-station transformers of 30,000 volts and above located at generating stations and in the principal transforming stations. Only the totals, in thousands of KVA, are shown for each company. With the exception of Societa Idroelettrica Piemonte (S.I.P.), Edison and Societa Adriatica di Elettricita (S.A.D.E.) the totals by companies are separated into two groups, one covering those of 30,000 KVA and larger in capacity and the other those of less than 30,000 KVA. The information has been assembled so as to reflect the KVA capacity that was available on liberation, the capacity available on 31 December 1945 and the unrepaired capacity as of that date.

Declassified E.O. 12356 Section 3.3/NND No. 785019

The details on companies are, in turn, grouped into areas in the same manner as has been used in setting up the information on generating plants, and transmission lines.

Summarizing Page 1, EXHIBIT No. 18, the following results are obtained on the damage to and the extent of rehabilitation accomplished:

Utilities	Pre-War Capacity 1,000 KVA	Available on Liberation %	Available 31 December 1945 %	Unrepaired as of 31 December 1946 %
Sardinia	87	76	86	14
Sicily	113	84	91	9
Southern	1,304	53	65	35
Central	2,753	20	45	55
Northern	11,897	88	95	5
Sub-total utilities	16,154	74	84	16
Italian State Railways	1,057	39	36	64
Total Italy	17,211	71	81	19

In the above, it will be noted that the extent of damage to sub-station transformers in Central and Southern Italy was the greatest as was the case with the generating plants in these two areas. The extent of rehabilitation of sub-station transformers, of 65% and 45% above, compares favorably with the extent of rehabilitation attained on generating plants, namely 63% for Southern Italy and 41% for Central Italy.

The railroads have the lowest percent of restoration on sub-stations, that is 36%.

It is interesting to note, that for all the sub-stations of Italy, the 71% available on liberation and 81% available on 31 December 1946 above agree almost exactly with the percentages for the same periods on generating plants, namely 71% and 82% respectively given on page 46 of this report.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Future rehabilitation of sub-stations will keep pace with the restoration of generating plants; however, utility company engineers have stated that many transformer units in Central and Southern Italy have undoubtedly had their life shortened from overloading. This will call for accelerated replacement or rewinding in years to come, depending on the extent to which the transformers have been subjected to overload conditions.

Declassified E.O. 12356 Section 3.3/NND No. 785019

XXVII -REHABILITATION OF TRANSMISSION LINES

The power transmission system of Italy is a complex network of circuits, especially in Northern Italy. Practically every community was receiving electric power and as a result, wherever there were combat or bombing operations of any kind, these facilities were subjected to varying degrees of damage depending upon the severity of activity in the particular area. In addition, certain high voltage lines, especially those providing power to the Italian State Railway system, were demolished by the enemy. This was accomplished by placing charges on the legs of the transmission towers, thereby causing the structures to collapse when the explosion was set off.

For the purposes of this report, the data on the electric power transmission systems of Italy has been confined to circuits of 30,000 volts and higher.

A set of maps and EXHIBIT No. 22 were prepared by the Electrical Division of the Sub-Commission and are considered to be the most complete available on the transmission systems of the Islands and the mainland of Italy. The Exhibit is in 5 parts, one consisting of a folder with explanatory notes and legends and the other 4 parts comprise maps depicting the transmission systems of the Islands--Sardinia, Sicily, Southern and Central and Northern Italy.

Reference numbers on each transmission line give the identity of the company owning the line and the voltage of the line. The first number indicates the ownership and the second indicates the voltage. Utility company lines are identified by numbers 1 to 1,000 and lines bearing numbers greater than 1,000 are identified as State Railway lines. A more detailed explanation of the numbering system is given in Part 1 of EXHIBIT No. 22.

There are some cases where lines are owned by utilities, but are for the service of the Railways. It is reported that these lines are shortly to be turned over to the ownership of the State Railway systems. These lines bear identification numbers greater than 1,000 and the important ones are the 4 circuit lines between Genoa and St. Dalmazzo, and Savona and St. Damiano. These are now actually owned by the Edison group, but are for the use of the State Railways and will shortly be turned over to them as stated above. Other lines to be turned over to the Italian State Railways have not been identified in this report.

A scheme of color nomenclature has been used on EXHIBIT No. 22 in order to portray the geographical areas, the transmission systems put

Declassified E.O. 12356 Section 3.3/NND No. 785019

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A scheme of color nomenclature has been used on EXHIBIT No. 22 in order to portray the geographical areas, the transmission systems put out of operation in those areas and to indicate the extent of rehabilitation accomplished up to about June 1946. All lines which sustained damage have been indicated in red and where rehabilitation has been accomplished the lines have been cross-marked in green. By this method the areas where the greatest concentration of damage occurred is shown and the extent of rehabilitation which has been accomplished in those areas.

Declassified E.O. 12356 Section 3.3/NND No. 785019

In Southern Italy the main 150,000 transmission lines, supplying the power from Sila generating stations to the Naples area on the west coast and the Bari Foggia areas on the east coast, did not sustain a large amount of damage except in concentrated areas, with the result that this main transmission grid was put back into operation within a relatively short time.

The 150 KV lines between Naples and Archi, Archi and Foggia, and between Archi and Terni line were not restored to service until early in 1946. These lines had been very severely damaged and since restoration it has been possible to transmit to Southern Italy approximately 50,000 KW of capacity which has partially relieved the power shortage in that area. This also permitted the shutting down of the Capuana thermal plant at Naples during the summer months of 1946 with a consequent saving in fuel oil consumption.

The damage to the transmission systems of Central Italy was practically universal, nearly every line having been effected as will be noted from EXHIBIT No. 22, Part 4.

In Northern Italy the greatest damage occurred along the east coast between Ancona and Bologna and along the east coast North of Bologna toward Venice. There are some lines between Bologna and Ancona that are still out of commission. The result has been that this area has been short of power for more than a year.

The interconnecting transmission lines between Central and Northern Italy were badly damaged, especially in the area between Gallicano and Ligonchio and the lines between Tavernuzze and Bologna. In view of the desperate power situation which existed in Central Italy in 1945, immediate steps were taken after liberation of Northern Italy to get these circuits back into operation and import power from Northern Italy. The first ones were the 60 KV lines between Gallicano and Ligonchio and one of the 130 KV lines between the same points. These were completed near the end of July 1945, about 3 months after the enemy was driven from the territory. Since then other interconnecting lines have now been restored to service as shown on EXHIBIT No. 22, Part 5, which now permit the flow of approximately 130,000 KW from Northern Italy into the Central Italy grids. The most important project benefiting Central Italy, which was just completed in May 1946, is the 130 KV transmission line starting at the large Bressanone hydro plant in Northern Italy, thence to Bologna, to Tavernuzze, to Terni.

As stated before, railway transmission lines suffered the greatest damage since they were the object of demolition on the part of the

Declassified E.O. 12356 Section 3.3/NND No. 785019

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The damage to the transmission systems of Central Italy was practically universal, nearly every line having been effected as will be noted from EXHIBIT No. 22, Part 4.

In Northern Italy the greatest damage occurred along the east coast between Ancona and Bologna and along the east coast North of Bologna toward Venice. There are some lines between Bologna and Ancona that are still out of commission. The result has been that this area has been short of power for more than a year.

The interconnecting transmission lines between Central and Northern Italy were badly damaged, especially in the area between Gallicano and Ligonchio and the lines between Tavernuzze and Bologna. In view of the desperate power situation which existed in Central Italy in 1945, immediate steps were taken after liberation of Northern Italy to get these circuits back into operation and import power from Northern Italy. The first ones were the 60 KV lines between Gallicano and Ligonchio and one of the 130 KV lines between the same points. These were completed near the end of July 1945, about 3 months after the enemy was driven from the territory. Since then other interconnecting lines have now been restored to service as shown on EXHIBIT No. 22, Part 5, which now permit the flow of approximately 130,000 KW from Northern Italy into the Central Italy grids. The most important project benefiting Central Italy, which was just completed in May 1946, is the 130 KV transmission line starting at the large Bressanone hydro plant in Northern Italy, thence to Bologna, to Tavernuzza, to Terni.

As stated before, railway transmission lines suffered the greatest damage since they were the object of demolition on the part of the enemy. Some of these lines were restored for the purpose of transmitting power for the utilities, but the extent of rehabilitation of the railway circuits, as will be shown in the following, has been the smallest.

The extensive mining done by the enemy without question hindered the rehabilitation work on transmission lines more than any other factor. It was first necessary to demine many kilometers on each transmission line route before it was considered safe for workmen to enter and

Declassified E.O. 12356 Section 3.3/NND No. 785019

carry on. This was particularly true on the interconnecting circuits discussed two paragraphs above.

Since many circuits were de-energized for long periods of time, considerable loss resulted from theft, especially in the case of copper which was, of course, in short supply in Italy. This situation became so serious in some areas that utility companies found it necessary to energize these circuits even though they were not capable of being utilized for transmission of power. Even then, however, the vandalism had become so well organized and skilled that the thieves would de-energize the circuits in order to remove the copper. Most of this occurred in Southern Italy on the 60 KV systems. At the present time, however, the greater part of this type of loss has been stopped since the break of a line usually interrupts service to some community or consumer and maintenance crews are immediately dispatched to the scene of the trouble.

An interesting example of emergency expediency occurred in Sicily on the 70 KV transmission system line interconnecting the east and west coast. The city of Messina had been so badly damaged that the tramway trolley conductor was taken down and used to replace the conductor on this line which had been damaged and stolen, thereby permitting the resumption of power flow between the Catania steam plant and the Island's hydroelectric plants.

The rehabilitation of transmission lines was, of course, effected by the shortage of material and conductor. In many instances, on double circuit lines, sufficient conductors and insulators remained so that by cannibilization enough material could be reassembled to provide for one complete circuit from the two original circuits. Also there were a few instances where conductors and insulators were removed from one line and remounted on other lines.

Aluminum conductors suffered considerably from abrasions and damage from artillery shell explosions and even from flying rocks and debris from ground explosions. A conductor still on towers might appear satisfactory when viewed from the ground, but only a close inspection would determine whether any strands of a conductor had been cut or mashed. Such inspections could only be accomplished by lowering the circuits to the ground.

In case of copper conductor it was necessary in some instances to salvage the wire and have it entirely redrawn or have other salvage copper redrawn into wire.

In order to portray the damage and rehabilitation in tabulated form,

Declassified E.O. 12356 Section 3.3/NND No. 785019

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In order to portray the damage and rehabilitation in tabulated form, EXHIBIT No. 19, Volume II, has been included with this report. This EXHIBIT sets forth the situation with respect to the transmission lines of 30,000 volts and greater.

The detail on each company is set up to show, by voltages, the pre-war length in kilometers, the length in operation on liberation, the length in operation on 31 December 1945 and the length unrepaired on that date. The details on companies are in turn grouped into areas in the same manner as has been used in setting up the tables on generating plants and sub-stations.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Summarizing page 1, EXHIBIT No. 19, the following results are obtained:

Utilities	Pre-war length in KM	Available on Liberation %	Available on 31 December 1945 %	Unrepaired as of 31 December 1946 %
Sardinia	757	100	100	0
Sicily	709	62	100	0
Southern	3,446	63	82	18
Central	6,686	11	84	16
Northern	23,043	65	94	5
Sub-total	34,630	55	92	8
Italian State Railways	8,387	19	49	51
Total Italy	43,017	48	83	17

In the above it will be noted that the damage to transmission lines was the greatest in Central Italy, wherein only 11% were in operation upon liberation. This had been increased, however, to 84% by the end of December 1945 leaving only 16% then yet unrepaired.

The Italian State Railways had only 49% of their transmission system in operation as of 31 December 1945.

By June of 1946, however, the utility companies and railways had restored other lines and the maps, EXHIBIT No. 22, give more nearly the up to date situation. It may be stated that the utility companies can be considered as having at least 90% of their transmission system in operation as of June 1946 and that the State Railways have approximately 60% and 70% as of the same date.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Southern	3,416	63	82	18
Central	6,636	11	84	16
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Sub-total	34,630	55	92	8
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Declassified E.O. 12356 Section 3.3/NND No. 785019

XXVIII - NEW POWER GENERATING AND TRANSMISSION FACILITIES IN PROCESS OF CONSTRUCTION AND FUTURE DEVELOPMENT

Two important generating plant projects are under construction in Central Italy which warrant mention in this report. These projects are the Larderello natural steam plants and the Gran Sasso development on the Volmano River known as the San Giacomo and Providenza Projects, being built by the Terni Company. The Electrical Division encouraged the Utilities to proceed with both of these projects even though they were in the category of long range planning.

The pre-war capacity of the natural steam plants in the Larderello area totalled 139,000 KW. Before the war the owners had developed plans to add an additional 100,000 KW of generating capacity, consisting of 4 units of 25,000 KW each, utilizing the natural steam direct from the wells. The greater part of the original installations used heat exchangers. This additional amount of capacity will be an important one for the reason that it will provide a continuous production of dependable power throughout the year and will not be subject to drought conditions or fuel supplies.

In the Gran Sasso development, which will extend over several years, the installed capacity of the various plants will be:

Providenza	150,000 KVA
San Giacomo	396,000 KVA
Aprati	50,000 KVA
Monterio	140,000 KVA
Total	736,000 KVA

The estimated average annual capacity is 96,450 KW.

The estimated annual output of these plants is 837,000,000 KWH.

The estimated cost based on 1940 prices was 852,000,000 lire.

The relation between the annual output and the installed capacity (utilization factor) is only about 16%. The plan, however, is to use the Gran Sasso plants for peak load purposes in conjunction with the Larderello natural steam plants discussed above. The latter will

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Montorio	140,000 KVA
Total	736,000 KVA

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The estimated annual output of these plants is 837,000,000 KWH.

The estimated cost based on 1940 prices was 852,000,000 lire.

The relation between the annual output and the installed capacity (utilization factor) is only about 16%. The plan, however, is to use the Gran Sasso plants for peak load purposes in conjunction with the Larderello natural steam plants discussed above. The latter will operate continuously at full output.

The first unit of 50,000 KW at San Giacomo is nearing completion and is expected to be put into operation by the end of 1946. Two others of the same size are expected to be finished in early 1947. These units will add materially to the power supplies of Central Italy during 1947.

Before the war the Italian Government had a plan of increasing its electric generating facilities in Italy at the rate of approximately 1,000,000,000 KWH a year, the program to extend over a period of 10 years. This program has been delayed by the war and the Larderello and Gran Sasso projects are a partial resumption of the scheduled program.

Declassified E.O. 12356 Section 3.3/NND No. 785019

The total estimated hydroelectric energy available in Italy is estimated at 45,000,000,000 KWH annually. The 1940 production was about 20,000,000,000 of KWH, leaving a possible further development of about 25,000,000,000 KWH not yet exploited. Future projects will become more and more costly as the least expensive, of course, have and are being developed first.

Before the war, work had been started on a main trunk transmission line down the mainland of Italy. Two sections have been completed, namely Bussolengo to Bologna to Tavernuzze and from Terni to Pescara. Ultimately this line will extend all the way from Bussolengo to Naples and is designed to operate at 220,000 volts. Those portions of the line which have been completed are now operating at 150,000 volts.

Plans are well under way to build a double circuit transmission line crossing over the Messina Straights between the Island of Sicily and the Italian mainland. This crossing is being designed to operate at 150,000 volts to tie in with the 150,000 volt grid of Southern Italy ultimately. See EXHIBIT No. 22, Volume II, part 4. To start with, it is planned to operate this crossing at 60,000 volts to connect with the existing line of that voltage at the Italian mainland terminus of the crossing. The available transmission voltage at the Sicilian terminus is 40,000 volts at Messina which will require some form of transformation.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Declassified E.O. 12356 Section 3.3/NND No. 785019

XXIX - ARTIFICIAL GAS PLANTS

The gas plants of Italy suffered damage in varying degrees depending on how close they were to areas which were subjected to aerial bombing and combat operations.

Since gas plants are consumers of large quantities of coal and since coal was in world short supply, the resumption of operation of these plants had to be delayed.

In Naples and Rome it was decided to permit a very limited operation in order to provide the civilian population with a limited amount of cooking fuel. ~~This was done late in 1944.~~ Naples was started in April 1944 and Rome in September 1944 with daughter maps
In the early stages gas supply was made available for one and one half to two hours per day and was gradually extended to four hours per day in the city of Rome.

The gas plants in Northern Italy were not permitted to operate due to lack of coal until December 1945 and then only on a limited basis, namely, two hours per day.

The lack of cooking and heating fuels caused the civilian population to procure hot plates and other electrical devices for domestic and heating purposes. The result was that in Northern Italy the domestic load increased approximately 500,000 KW which was about 25% of the load being carried by the electrical systems in Northern Italy in the fall of 1945. The result was that cables and distribution transformers became heavily overloaded with a consequent damage to equipment, low voltage and interruptions in service.

The same situation was more or less true in other metropolitan areas of Italy, such as Rome and Naples, where it was difficult for the civilian population to obtain other cooking and heating fuels.

Probably the greatest help that could be given utility systems to reduce the load during 1946 would be stockpiling of coal for gas plant operations in order to permit more nearly full-time operation during the winter months. With the return of warm weather the need for heat, of course, will diminish, but the civilian population still needs the gas service and its by-products for domestic service and also for industrial operations.

Declassified E.O. 12356 Section 3.3/NND No. 785019

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Naples April 1944
Rome Sept. 1944

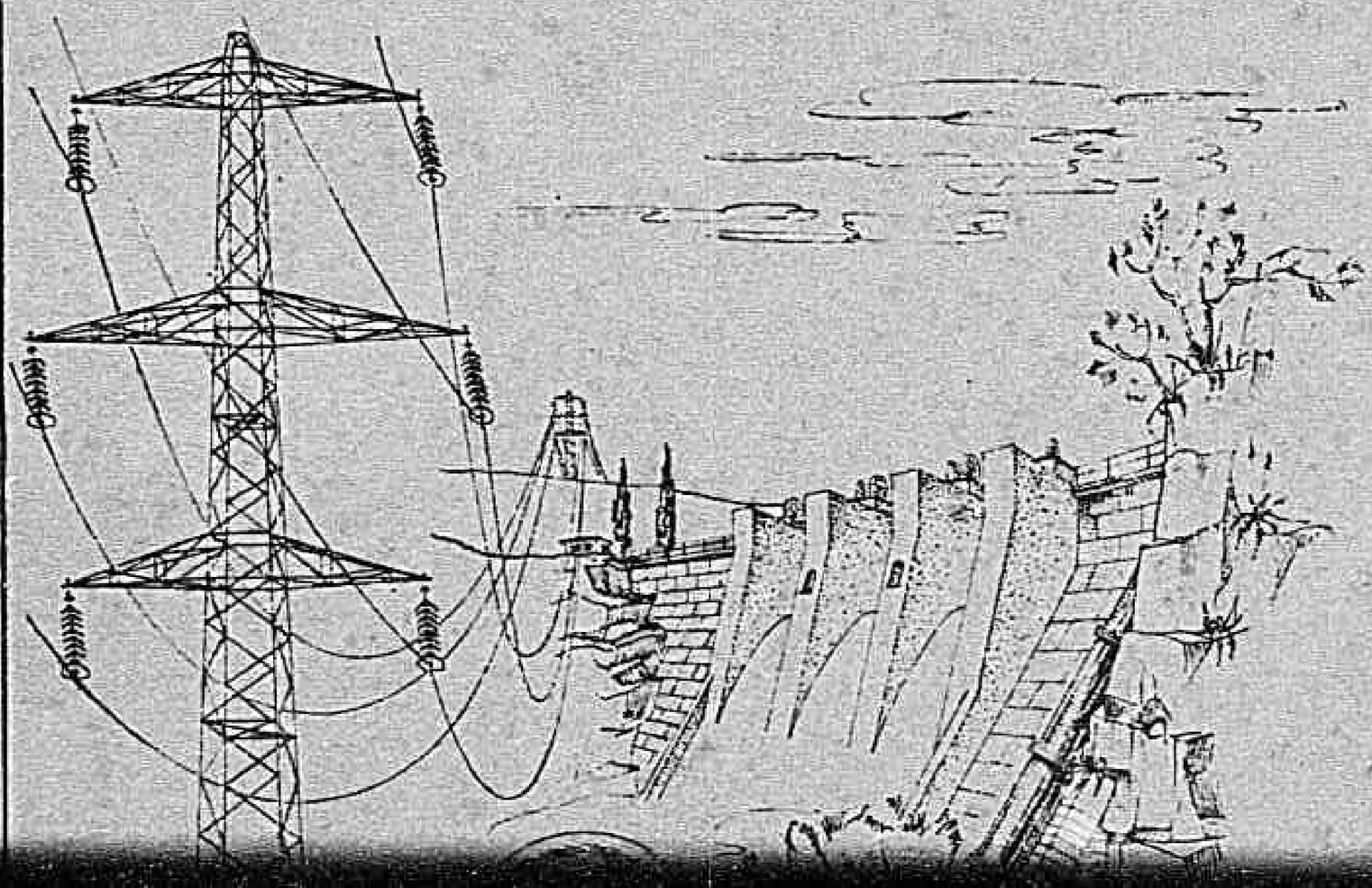
Declassified E.O. 12356 Section 3.3/NND No. 785019

ALLIED COMMISSION

PUBLIC WORKS & UTILITIES SUB-COMMISSION

ELECTRICAL DIVISION

Historical report of the organization and activities of the Division for the period Sept. 1943 to June 1-1946.



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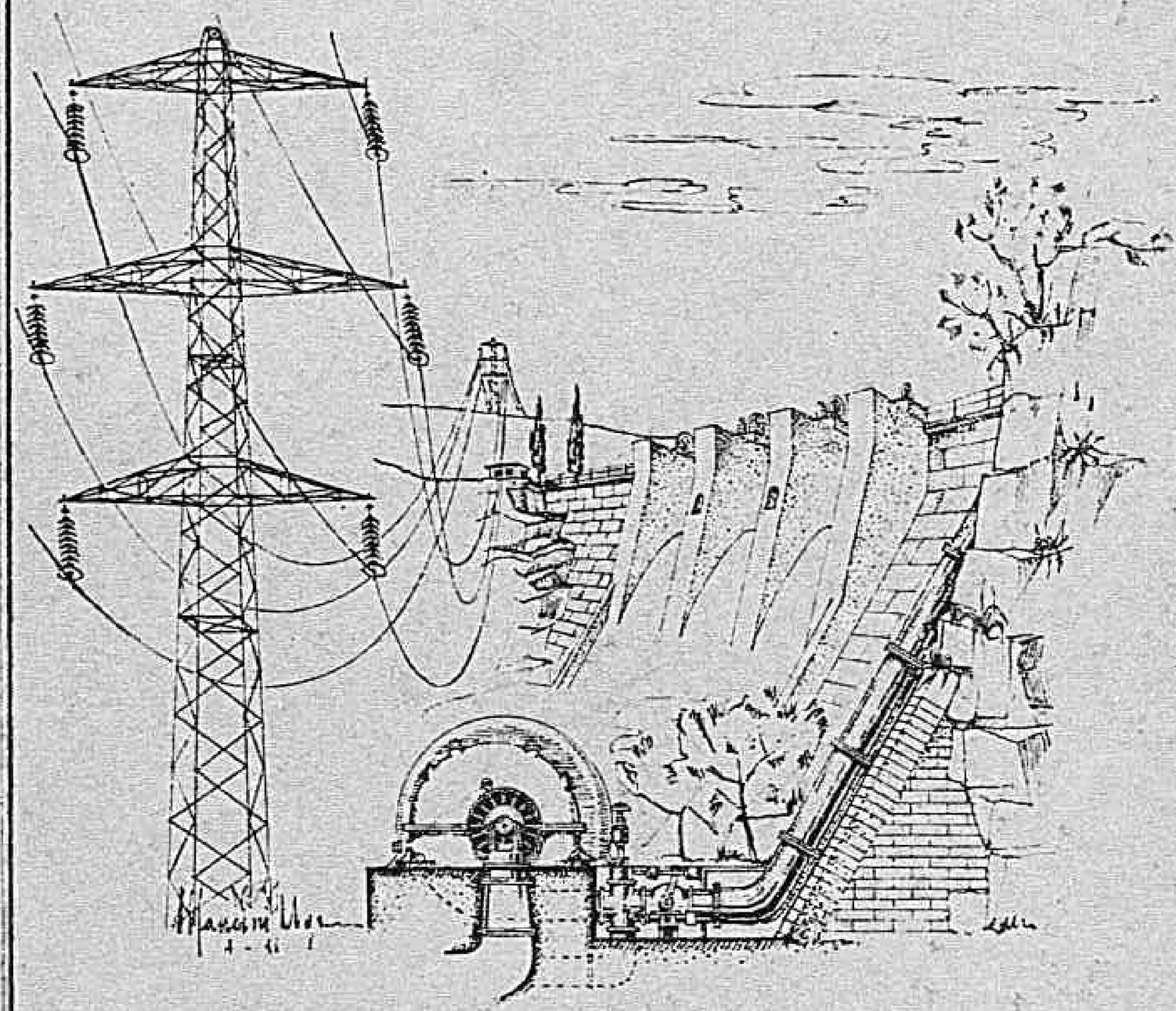

VOLUME II

of two Volumes

4:20

Declassified E.O. 12356 Section 3.3/NND No. 785019

I N D E X

O F

C O N T E N T S

VOLUME II - (EXHIBITS)

	NO. OF PAGES
1 - A.F.H.Q. ADMINISTRATIVE MEMORANDUM NO. 58 - POWER REHABILITATION, 12 DECEMBER 1944----------	2
2 - A.F.H.Q. ADMINISTRATIVE MEMORANDUM NO. 32 - ELECTRIC POWER REHABILITATION, 30 MAY 1946----------	1
3 - LEGISLATIVE DECREE NO. 255, 5 APRIL 1946 - FREQUENCY STANDARDIZATION, CENTRAL AND SOUTHERN ITALY----------	2
4 - REPORT ON PRODUCTION, ITALY - 1944-1945----------	2
5 - ZINC PRODUCTION AND EXPORT, ITALY - 1940 to 1945-------	2
6 - APPLICATION FOR INDUSTRIAL POWER IN OCCUPIED ITALY, 16 DECEMBER 1944----------	2
7 - APPLICATION FOR ELECTRICITY SUPPLY FOR CIVILIAN PURPOSES, ITALIAN GOVERNMENT TERRITORY, 19 MARCH 1945----------	1
8 - GOVERNMENT DECREE NO. 95 (3 APRIL 1944) POWER RATIONING, ITALY----------	5
9 - CONSERVATION IN USE OF ELECTRIC POWER BY MILITARY, A.F.H.Q. - 31 OCTOBER 1944----------	2
10 - REGIONAL ORDER NO. 16 - A.M.G. LOMBARDIA, 19 DECEMBER 1945, LIMITING POWER CONSUMPTION NORTH ITALY----------	3
11 - DECREE BY REGIONAL COMMISSIONER, NORTHERN ITALY, 15 FEBRUARY 1946 - LIMITING POWER CONSUMPTION NORTH ITALY----------	3

Declassified E.O. 12356 Section 3.3/NND No. 785019

VOLUME II - (ANNEXES)

NO. OF PAGES

1 - A.F.H.Q. ADMINISTRATIVE MEMORANDUM NO. 58 - POWER REHABILITATION, 12 DECEMBER 1944---------- 2

2 - A.F.H.Q. ADMINISTRATIVE MEMORANDUM NO. 32 - ELECTRIC POWER REHABILITATION, 30 MAY 1946---------- 1

3 - LEGISLATIVE DECREE NO. 255, 5 APRIL 1946 - FREQUENCY STANDARDIZATION, CENTRAL AND SOUTHERN ITALY---------- 2

4 - REPORT ON PRECIPITATION, ITALY - 1944-1945---------- 2

5 - KWH PRODUCTION AND EXPORT, ITALY - 1940 to 1945------- 2

6 - APPLICATION FOR INDUSTRIAL POWER IN OCCUPIED ITALY, 16 DECEMBER 1944---------- 2

7 - APPLICATION FOR ELECTRICITY SUPPLY FOR CIVILIAN PURPOSES, ITALIAN GOVERNMENT TERRITORY, 19 MARCH 1945---------- 1

8 - GOVERNMENT DECREE NO. 95 (9 APRIL 1944) POWER RATIONING, ITALY---------- 5

9 - CONSERVATION IN USE OF ELECTRIC POWER BY MILITARY, A.F.H.Q. - 31 OCTOBER 1944---------- 2

10 - REGIONAL ORDER NO. 16 - A.M.G. LOMBARDIA, 19 DECEMBER 1945, LIMITING POWER CONSUMPTION NORTH ITALY---------- 3

11 - DECREE BY REGIONAL COMMISSIONER, NORTHERN ITALY, 15 FEBRUARY 1946 - LIMITING POWER CONSUMPTION NORTH ITALY---------- 3

12 - GOVERNMENT DECREE, 1 MARCH 1946 - CREATING OFFICE OF COMMISSIONER FOR CONTROL OF ELECTRIC POWER IN CENTRAL AND SOUTHERN ITALY---------- 2

13 - APPLICATION BY ELECTRIC COMPANIES FOR RATE ADJUSTMENTS AND SURCHARGES---------- 3

14 - REGIONAL ORDER NO. 17 - A.M.G. LOMBARDIA, AUTHORIZING COAL SURCHARGE ON POWER CONSUMED, NORTH ITALY---------- 2

15 - EXTRACTS FROM DECREE NO. 367, 1 NOVEMBER 1944 - FINANCING WAR DAMAGES---------- 1

16 - DECREE NO. 397, 15 NOVEMBER 1944 - FINANCING WAR DAMAGE---------- 2

Declassified E.O. 12356 Section 3.3/NND No. 785019

VOLUME II - (EXHIBITS) NO. OF PAGES

17 - REHABILITATION OF POWER PLANTS (STATISTICAL DATA)----- 41

18 - REHABILITATION OF SUB-STATIONS (STATISTICAL DATA)----- 10

19 - REHABILITATION OF TRANSMISSION LINES (STATISTICAL DATA) 8

20 - REGIONAL BOUNDARY MAP, ITALY (UNBOUND)---------- 1

21 - FREQUENCY AREA MAP, ITALY (UNBOUND)---------- 1

22 - TRANSMISSION LINE MAPS, ITALY (PLACED IN SEPARATE FOLDER)---------- 5 parts

23 - POWER PLANT MAPS, ITALY (PLACED IN SEPARATE FOLDER)--- 4 parts

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

RESTRICTED

ALLIED FORCE HEADQUARTERS
APO 512

ADMINISTRATIVE MEMORANDUM)
:
NUMBER 58) 12 December 1944

POWER REHABILITATION

AFHQ Administrative Memorandum Number 43, 1944, is rescinded and the following substituted therefore:

1. The function of power rehabilitation having been transferred to control of AFHQ the following will govern:

2. a. The Chief Engineer, AFHQ, will

(1) Exercise staff supervision of power rehabilitation activities

(2) Recommend rehabilitation policies

(3) Coordinate power rehabilitation activities of the various agencies concerned.

b. Electrical Reconstruction Committee.

(1) The Central Electrical Board, Italy, is dissolved. There is hereby created an Electrical Reconstruction Committee (Italy), with membership as follows:

Chief Engineer AFHQ (Chairman)

Representatives of: AC, AAI, PBS, District No. 3, MRS (Italy), and RN.

It is requested that AC, AAI, PBS, District No. 3, MRS (Italy), and RN advise AFHQ of representatives selected for membership.

(2) The Electrical Reconstruction Committee will:

(a) Meet at the call of the Chairman.

(b) Recommend studies for determining power requirements as may be required.

(c) Recommend study of and preparation of plans for

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(2) The Electrical Reconstruction Committee will:

(a) Meet at the call of the Chairman.

(b) Recommend studies for determining power requirements as may be required.

(c) Recommend study of and preparation of plans for power rehabilitation as may be required.

(d) Review AC plans for power rehabilitation, correlating them with the requirements and make recommendations as to extent and nature of rehabilitation.

(e) Recommend designation of agency to perform specific construction work of rehabilitation, when necessary.

(f) Make such other recommendations regarding power rehabilitation as it deems necessary.

EXHIBIT NO. 1
page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

c. The AC wi

(1) Furnish Secretariat for the Electrical Reconstruction Committee

(2) Be responsible for planning power rehabilitation throughout Italy

(3) Maintain liaison with AAI and keep informed as to existence and condition of power plants and probable rehabilitation needs in operational areas

(4) Ascertain power requirements from AAI, PBS, Districts (Br), and other sources

(5) Submit plans for rehabilitation to the Chief Engineer for consideration and approval of the Electrical Reconstruction Committee

(6) Using Italian labor and local materials, direct, administer and supervise construction work of rehabilitation and operate the power systems except those projects specifically assigned other agencies by AFHQ and except as provided in Paragraphs 2d (2) and 2e (1)

(7) Will issue all orders necessary to implement the program to Italian Power Companies or other civilian agencies

(8) Keep the Chief Engineer, AFHQ, advised of its activities.

d. AAI will:

(1) Cooperate with AC in determining existence and condition of power plants and probable rehabilitation needs in the operational area

(2) Insofar as practicable initiate, construct and operate such power installations within the operational areas as it considers necessary, coordinating with plans of AC

(3) Advise the Chief Engineer, AFHQ, of any power rehabilitation work undertaken.

e. MRB (Italy), PBS, and Districts (Br) under command AFHQ will:

(1) Initiate, construct and operate such power installations as are required locally for their own activities

(2) Undertake such general power rehabilitation projects as may be specifically assigned by AFHQ.

(3) Cooperate with AC and AAI and render them such aid and assistance as is practicable within available means and without detriment to their own operations

(4) Advise the Chief Engineer, AFHQ, of [illegible]

Declassified E.O. 12356 Section 3.3/NND No. 785019

sideration and approval of the Electrical Reconstruction Committee

(6) Using Italian labor and local materials, direct, administer and supervise construction work of rehabilitation and operate the power systems except those projects specifically assigned other agencies by AFHQ and except as provided in Paragraphs 2d (2) and 2e (1)

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(1) Initiate, construct and operate such power installations as are required locally for their own activities

(2) Undertake such general power rehabilitation projects as may be specifically assigned by AFHQ.

(3) Cooperate with AC and AAI and render them such aid and assistance as is practicable within available means and without detriment to their own operations

(4) Advise the Chief Engineer, AFHQ, of any power rehabilitation work undertaken.

3. Orders to implement plans will be issued through normal staff channels in respect to work for which military agencies are to be responsible.

4. The agencies mentioned above will furnish the required personnel from their own allotments.

By command of Field Marshal ALEXANDER:

C. W. CHRISTENBERRY,
Colonel, AGD,
Acting Adjutant General.

EXHIBIT NO 1
page 2 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

DCK/fs

R E S T R I C T E D

30 May 1946

Allied Force Headquarters
APO 512

ADMINISTRATIVE MEMORANDUM)
:
NUMBER 52)

Electric Power Rehabilitation I
Local Resources in Italy - Mainland & Islands..... II
Establishment of Local Sub-Committees of Labor and
Wages Control Committee.....III

I--- ELECTRIC POWER REHABILITATION

AFHQ Administrative Memorandum Number 52, 1944, and Section I, Administrative Memorandum Number 7, 1945, are rescinded.

1. The Electrical Reconstruction Committee created by above Administrative Memoranda is dissolved.

2. The functions of electric power rehabilitation are transferred to the Allied Commission.

3. Military agencies engaged in electric power rehabilitation activities will coordinate their plans with the Allied Commission.

II--LOCAL RESOURCES IN ITALY - MAINLAND & ISLANDS

AFHQ Administrative Memorandum Number 52, 1944, is amended as follows:

1. Section I, Paragraph 2, Restricted Items is amended by the addition of the following after Item 1:-

"7. Poplar Wood."

2. Section I, Paragraph 1(f), Industrial Gases and Chemicals, delete Serial 29 and substitute:

"29. Gas Bottles and Containers - other than those specifically designed for the storage of Methane Gas."

III- ESTABLISHMENT OF LOCAL SUB-COMMITTEES OF LABOR AND WAGES CONTROL COMMITTEE

AFHQ Administrative Memorandum Number 25, 1945, is amended

Declassified E.O. 12356 Section 3.3/NND No. 785019

Establishment of Local Sub-Committees of Labor and Wages Control Committee.....III

I--- ELECTRIC POWER REHABILITATION

AFHQ Administrative Memorandum Number 58, 1944, and Section I, Administrative Memorandum Number 7, 1945, are rescinded.

1. The Electrical Reconstruction Committee created by above Administrative Memoranda is dissolved.

2. The functions of electric power rehabilitation are transferred to the Allied Commission.

3. Military agencies engaged in electric power rehabilitation activities will coordinate their plans with the Allied Commission.

II--LOCAL RESOURCES IN ITALY - MAINLAND & ISLANDS

AFHQ Administrative Memorandum Number 52, 1944, is amended as follows:

1. Section I, Paragraph 2, Restricted Items is amended by the addition of the following after Item 1:-

"7. Poplar Wood."

2. Section I, Paragraph 1(f), Industrial Gases and Chemicals, delete Serial 29 and substitute:

"29. Gas Bottles and Containers - other than those specifically designed for the storage of Methane Gas."

III- ESTABLISHMENT OF LOCAL SUB-COMMITTEES OF LABOR AND WAGES CONTROL COMMITTEES

AFHQ Administrative Memorandum Number 25, 1945, is amended as follows:

1. In Paragraph 6b, line 3, before "Allied" insert "Combined" and after "Scale" insert "and bonuses".

2. Paragraph 2b of Appendix "A" is amended by the addition of the words: "(including an appropriate allowance for paid annual and other holidays)".

3. Paragraph 3 of Appendix "A" is amended by the insertion of the words "sickness insurance" after the words "social insurance".

BY COMMAND OF FIELD MARSHAL ALEXANDER:

(Signed)
C. W. CHRISTENBERRY
Colonel, AGD
Adjutant General

EXHIBIT NO 2, page one

Declassified E.O. 12356 Section 3.3/NND No. 785019

LIEUTENANT'S LEGISLATIVE DECREE NO. 255 - 5 APRIL 1946

Published in the Gazzetta Ufficiale 10 May 1946

Umberto di Savoia

Prince of Piedmont

Lieutenant General of the Kingdom

By virtue of the powers delegated to us,

Having seen the Law 7 December 1942 no. 1745 concerning the standardization of frequency for electric systems.

Considering the advisability of carrying out now, while damaged or destroyed plants are being restored, the necessary changes for the frequency standardization according to the aforesaid law, and in order to make easier the interchange of power between the various regions, especially in Central and Southern Italy. Considering the necessity of accelerating the standardization of frequency as stated by the aforesaid law.

Having seen the Lieutenant's Legal Decree 25 June 1944 no. 151.

Having seen the Lieutenant's Legislative Decree 1 February 1945, no. 58.

Having seen the deliberation of the Council of Ministers.

Following the proposal of the Minister Secretary of State for Public Works, in agreement with the Ministers Secretaries of State for Industry and Commerce and for Transport.

We have enacted and enact what follows:

Art. 1

The date within which, as shown by Art. 5 of Law 7 December 1942 no. 1745, all existing machinery and electric plant for the generation, transmission, transformation and utilization of electric power, as well as prime movers and associated operating machines are to be adapted for operation at 50 cycles, is advanced to 31 December 1946 for the regions of Central and Southern Italy (Toscana, Marche, Umbria, Lazio, Abruzzi e Molise, Puglie, Campania, Basilicata, Calabria)

Declassified E.O. 12356 Section 3.3/NND No. 785019

Considering the advisability of carrying out now, while damaged or destroyed plants are being restored, the necessary changes for the frequency standardization according to the aforesaid law, and in order to make easier the interchange of power between the various regions, especially in Central and Southern Italy. Considering the necessity of accelerating the standardization of frequency as stated by the aforesaid law.

Having seen the Lieutenant's Legal Decree 25 June 1944 no. 151.

Having seen the Lieutenant's Legislative Decree 1 February 1945, no. 58.

Having seen the deliberation of the Council of Ministers.

Following the proposal of the Minister Secretary of State for Public Works, in agreement with the Ministers Secretaries of State for Industry and Commerce and for Transport.

We have created and enact what follows:

Art. 1

The date within which, as shown by Art. 5 of Law 7 December 1942 no. 1745, all existing machinery and electric plant for the generation, transmission, transformation and utilization of electric power, as well as prime movers and associated operating machines are to be adapted for operation at 50 cycles, is advanced to 31 December 1946 for the regions of Central and Southern Italy (Toscana, Marche, Umbria, Lazio, Abruzzi e Molise, Puglie, Campania, Basilicata, Calabria)

The producers, distributors and users of electric power will respectively take care of and incur the expenses for the required alterations.

After that date the electric systems in those regions will be operated exclusively at 50 cycles.

Art. 2

The Minister of Public Works is authorized to promote agreements between the interested parties for the quickest application of the law 7 December 1942 no. 1745 in the other regions and to fix,

EXHIBIT No. 3
Page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

by means of subsequent decrees and having heard the Minister of Industry and Commerce, and the Minister of Transport, the date on which the aforesaid law is to be applied to those regions, within the latest term considered by that law.

We order that the present decree, provided with the Seal of State, be inserted in the Official Collection of Laws and Decrees of the Kingdom of Italy entrusting anybody concerned to comply with and enact it as a Law of the State.

Rome - 5 April 1946

Declassified E.O. 12356 Section 3.3/NND No. 785019

EXHIBIT NO. 3
page 2 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

REPORT ON PRECIPITATION

In Italy

Northern Italy

Area	AVERAGE Reference Period	AVERAGE MM. of Precipitation	Total 1944 MM. of Precipitation	Total 1945 MM. of Precipitation
Turin	1926-45	946.0	644.0	640.0
Milan	179 years	1,005.0	732.0	654.0
Venice	1921-40	785.0	823.6	450.6
Geneva	103 years	1,295.6	717.4	1,130.0
Parma	108 years	748.0	651.0	353.0
Bologna	1921-40	633.2	829.2	388.3
Pisa	1921-40	1,031.0	705.0	373.1
Average North Italy		921.7	728.9	570.0
Percent of reference period average			79.0 %	62 %

Central Italy

Area	AVERAGE Reference Period	AVERAGE MM. of Precipitation	Total 1944 MM. of Precipitation	Total 1945 MM. of Precipitation
Florence	1921-40	822.0	655.4	489.7
Perugia	1921-40	908.0	991.1	524.9
Contigliano	1921-40	1,454.8	1,111.0	694.0
Cetti di Monte Bove	1921-40	922.9	809.8	561.9
Rome	1921-40	854.6	477.8	381.6

Declassified E.O. 12356 Section 3.3/NND No. 785019

Milan	179 years	1,003.0	732.0	654.0
Venice	1921-40	795.0	823.6	450.6
Genova	108 years	1,295.6	717.4	1,130.0
Parma	108 years	748.0	651.0	353.0
Bologna	1921-40	633.2	829.2	388.5
Pisa	1921-40	1,031.0	705.0	573.1
Average North Italy		921.7	728.9	570.0
Percent of reference period average			79.0 %	62 %

Central Italy

Area	AVERAGE Reference Period	AVERAGE MM. of Precipitation	Total 1944 MM. of Precipitation	Total 1945 MM. of Precipitation
Florence	1921-40	822.0	855.4	489.7
Perugia	1921-40	908.0	991.1	524.9
Contigliano	1921-40	1,454.8	1,111.0	694.0
Cotti di Monte Bova	1921-40	922.9	809.8	561.9
Roma	1921-40	834.5	477.8	361.6
Average Central Italy		988.4	849.0	606.4
Percent of reference period average			86.0 %	51 %

EXHIBIT NO. 4
page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Southern Italy

Area	AVERAGE Period Reference	AVERAGE MM. of Precipitation	Total 1944 MM. of Precipitation	Total 1945 MM. of Precipitation
Naples	1921-40	805.0	1,016.9	675.5
Bari	1938-41	723.2	501.8	517.6
Potenza	60 years	768.8	866.3	682.8
Average South Italy		763	795.0	624.6
Percent of reference period average			104.0 %	82 %

Sicily

Area	AVERAGE Period Reference	AVERAGE MM. of Precipitation	Total 1944 MM. of Precipitation	Total 1945 MM. of Precipitation
Palermo	1921-40	753.0	674.2	630.2
Percent of reference period average			89.5%	83.5%

Sardinia

Area	AVERAGE Period Reference	AVERAGE MM. of Precipitation	Total 1944 MM. of Precipitation	Total 1945 MM. of Precipitation
Iglesias	51 years	820.4	693.9	510
Percent of reference period average				

Declassified E.O. 12356 Section 3.3/NND No. 785019

Average South Italy		763	795.0	624.6
Percent of reference period average			104.0 %	82 %

Sicily

Area	AVERAGE Period Reference	AVERAGE MM. of Precipitation	Total 1944 MM. of Precipitation	Total 1945 MM. of Precipitation
Palermo	1921-40	753.0	674.2	630.2
Percent of reference period average			89.5%	83.5%

Sardinia

Area	AVERAGE Period Reference	AVERAGE MM. of Precipitation	Total 1944 MM. of Precipitation	Total 1945 MM. of Precipitation
Iglecias	51 years	620.4	695.9	510
Percent of reference period average			84.5%	62.5%

EXHIBIT 4
page 2 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

KWH PRODUCTION AND IMPORT - ITALY KWH X 10^3

	1940		1941		1
	Hydro	Thermo	Hydro	Thermo	Hydro
Northern Italy	12,697,535	368,349	13,735,724	269,091	13,256,595
Central Italy	2,495,822	551,142	2,769,268	667,211	2,410,070
Southern Italy	1,936,909	62,858	1,691,003	42,442	1,934,160
Sicily & Sardinia	253,261	189,224	257,729	208,409	240,795
Total	17,983,527	1,165,562	18,653,724	1,187,153	17,841,620
Total Italy	18,549,089		19,840,877		19
Imported	252,303		231,943		
Grand total	18,801,392		20,072,820		19

EXHIBIT NO. 5
page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

KWH PRODUCTION AND IMPORT-ITALY KWH X 10^3

1940		1941		1942	
	Therme	Hydro	Therme	Hydro	Therme
35	368.343	13.735.724	269.091	13.256.595	286.228
22	551.142	2.769.268	667.211	2.410.070	918.215
09	62.859	1.891.003	42.442	1.934.160	27.367
61	183.224	257.729	208.409	240.795	263.815
27	1.165.562	18.653.724	1.187.153	17.841.620	1.495.625
18.549.089		19.840.877		19.337.245	
252.303		231.943		247.088	
18.801.392		20.072.820		19.584.333	

EXHIBIT NO. 5
page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

KWH PRODUCTION AND IMPORT, ITALY KWH X 10^3

	1 9 4 3		1 9 4 4		1
	Hydro	Thermo	Hydro	Thermo	Hydro
Northern Italy	12,989,750	217,147	10,398,631	124,220	9,719,7
Central Italy	1,890,262	910,232	939,669	347,096	966,8
Southern Italy	1,244,434	15,230	809,716	39,060	1,023,0
Sicily & Sardinia	163,469	149,967	218,027	95,304	179,0
Total	16,287,915	1,292,576	12,366,043	605,680	11,888,69
Total Italy	17,580,491		12,971,723		12
Imported	191,434		30,517		
Grand Total	17,771,925		13,002,240		12

EXHIBIT NO. 5
page 2 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

KWH PRODUCTION AND IMPORT-ITALY KWH X 10^9

1943		1944		1945	
	Thermo	Hydro	Thermo	Hydro	Thermo
750	217.147	10,398,631	124,220	9.719.742	8.058
262	910,232	939,669	347.096	966,852	119.959
434	15.230	809.716	39.060	1,023,057	64.958
469	149.967	218.027	95.304	179.044	153.773
915	1,292,576	12,366,049	605.680	11,888,695	346.748
	17,580,491		12,971,723		12,235,449
	191.434		90,517		7,360
	17,771,925		13,002,240		12,242,809

EXHIBIT NO. 5
page 2 of 2 pages

Tel. 476.801 LHL/ac

HEADQUARTERS ALLIED COMMISSION
APO 394
ECONOMIC SECTION

Reference : 9.01/Ms. 15 December 1944

Subject : Applications for Industrial power in occupied Italy.

To : INDUSTRY SUB-COMMISSION A.C.

REGIONAL COMMISSIONER SARDINIA
(Att. Reg. Engineer) SICILY
SOUTHERN REGION
LAZIO - UMBRIA REGION
MARCHE - ABRUZZI - MOLISE REGION
TOSCANA REGION
EMILIA REGION
LOMBARDIA REGION
LIGURIA - PIEMONTE REGION
VENEZIA REGION

1) - Requests by Sub-Commissions of A.C. for industrial power, for industries, in occupied Italy will be made in duplicate to the Regional Commissioner, marked to the attention of the Regional Engineer, of the Region in which the particular industry is located.

2) - A copy of the request is to be sent to the Public Works and Utilities Sub-Commission A.C. for their information in order that they may correlate the requests and be in position to know what demands are being made, their location, and assist in expediting the request.

3) - The Electrical Division of Public Works and Utilities Sub-Commission is in position to advise other Sub-Commissions of A.C. on the present and future position with respect to power supplies in given areas for industrial and other essential purposes.

4) - Each request for industrial power should contain the following necessary information for prompt consideration:

Declassified E.O. 12356 Section 3.3/NND No. 785019

REGIONAL COMMISSIONER SARDINIA
(Att. Reg. Engineer) SICILY
SOUTHERN REGION
LAZIO - UMBRIA REGION
MARCHE - ABRUZZI - MOLISE REGION
TOSCANA REGION
EMILIA REGION
LOMBARDIA REGION
LIGURIA - PIEMONTE REGION
VENEZIA REGION

1) - Requests by Sub-Commissions of A.C. for industrial power, for industries, in occupied Italy will be made in duplicate to the Regional Commissioner, marked to the attention of the Regional Engineer, of the Region in which the particular industry is located.

2) - A copy of the request is to be sent to the Public Works and Utilities Sub-Commission A.C. for their information in order that they may correlate the requests and be in position to know what demands are being made, their location, and assist in expediting the request.

3) - The Electrical Division of Public Works and Utilities Sub-Commission is in position to advise other Sub-Commissions of A.C. on the present and future position with respect to power supplies in given areas for industrial and other essential purposes.

4) - Each request for industrial power should contain the following necessary information for prompt consideration:

(a) - Name of industry
(b) - Location of nearest town or city
(c) - Give street address if possible
(d) - Estimated demand in KW (see h, i, and j)
(e) - Estimated Kwh required per month
(f) - Number of months power required
(g) - Estimated date on which factory is to start operations
(h) - Hours of operation per day giving approximate starting time and stopping time
(i) - Can the industry operate during off peak hours i.e. 2200 hours till 0600 hours the following day which is the period of low power consumption? THIS IS IMPORTANT.

EXHIBIT NO. 6

page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

(j) - Can the industry operate at a reduced load during the period of the day 0600 hours till 2200 hours and at a greater load between 2200 and 0600 hours? If so give the estimated demand for the two periods under item (d) above.

(k) - Describe briefly the product manufactured by the industry and any important facts for purposes of justification.

5) - Electric power production, especially in Central Italy, is and will be, in short supply for many months and every effort should be made to encourage industry to operate on the plan suggested in items (i) and (j) above in order that maximum use will be made of the available supply.

A. G. ANTOLINI
Acting Vice President
Economic Section

Declassified E.O. 12356 Section 3.3/NND No. 785019

justification.

5) - Electric power production, especially in Central Italy, is and will be, in short supply for many months and every effort should be made to encourage industry to operate on the plan suggested in items (i) and (j) above in order that maximum use will be made of the available supply.

A. C. ANTOLINI
Acting Vice President
Economic Section

EXHIBIT NO 6

page 2 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

HEADQUARTERS ALLIED COMMISSION
APO 394
PUBLIC WORKS AND UTILITIES SUB-COMMIS.

Electrical Division

19 March 1945

Application for supply of electricity for civilian purposes in Italian Government Territory

1) - Application for a supply of electricity for civilian purposes within the Italian Government territory should in all cases be made to the Local Office of the Electricity Supply Company.

2) - Electricity Supply Companies will submit a list of all applications for electricity to the Provincial Commission within whose area the request is made.

3) - Provincial Commissions (included in the Italian Government electricity rationing decree dated 5 April 1944) will examine all applications for electricity, give priority rating and pass them to the Advisory Committee on Electric Power for the area concerned.

4) - Advisory Committee on Electric Power is a technical body to advise the Ministry on matters connected with electric power. They are formed in Sardinia, Sicily, Southern and Central Italy and will, for each of these areas, advise on the availability of electric power, passing the list of applications forward to the Central Commission.

5) - Central Commission in the Ministry of Public Works (included in the Italian Government electricity rationing decree dated 5th April 1944) will coordinate applications for electricity, make final decisions and apply to the Allied Commission representative on the Electric Power Committee of the Allied Force Local Resources (Italian) Board for the power to be made available.

6) - Allied Commission representative on the Electric Power Committee will submit the applications for electricity to the Chief Engineer of the appropriate Military District who will include them in his bid on the Electric Power Committee of the A.F.L.R. (I) B. afterwards notifying the

Declassified E.O. 12356 Section 3.3/NND No. 785019

Supply Company.

2) - Electricity Supply Companies will submit a list of all applications for electricity to the Provincial Commission within whose area the request is made.

3) - Provincial Commissions (included in the Italian Government electricity rationing decree dated 5 April 1944) will examine all applications for electricity, give priority rating and pass them to the Advisory Committee on Electric Power for the area concerned.

4) - Advisory Committee on Electric Power is a technical body to advise the Ministry on matters connected with electric power. They are formed in Sardinia, Sicily, Southern and Central Italy and will, for each of these areas, advise on the availability of electric power, passing the list of applications forward to the Central Commission.

5) - Central Commission in the Ministry of Public Works (included in the Italian Government electricity rationing decree dated 5th April 1944) will coordinate applications for electricity, make final decisions and apply to the Allied Commission representative on the Electric Power Committee of the Allied Force Local Resources (Italian) Board for the power to be made available.

6) - Allied Commission representative on the Electric Power Committee will submit the applications for electricity to the Chief Engineer of the appropriate Military District who will include them in his bid on the Electric Power Committee of the A.F.L.R. (I) B. afterwards notifying the Electric Power Company direct regarding the power which is to be made available.

NOTE: By deleting (5) and altering (5) to read that the Central Commission will make request direct to the Electric Power Companies, the arrangements will be used at a later date by the Italian Government in their post war electricity rationing scheme.

W. M. LAPPER
Lt-Colonel
Chief Elec. Div.

EXHIBIT NO 7
page 1

Declassified E.O. 12356 Section 3.3/NND No. 785019

REGULATIONS CONCERNING THE LIMITATION IN THE CONSUMPTION OF ELECTRIC ENERGY

DECREE NO. 95
VICTOR EMANUEL THE III

by the Grace of God and will of the Nation

KING OF ITALY

Having seen the Royal Decree, Law No. 81 of February 12, 1942, concerning the regulation of the consumption of electric energy for light and domestic uses, converted with modifications into law on June 13, 1942, No. 850.

Having seen the law 8 July 1941 no. 645, containing legal instructions concerning production, supply, consumption of goods, services and labor.

Having seen article 18 of the Law, No. 129, 12 Jan. 1939.

Having Seen the Royal Decree No. 2/B, Oct. 30, 1943

Considered that there is a state of emergency due to the war
Having heard the Council of Ministers;
Following the proposal of the Minister of Public Works, in agreement with the Ministers of Finance and Industry, Commerce and Labor:

WE HAVE ENACTED AND WE ENACT:

ART. 1

The consumers of electricity used for lighting of private homes, industrial plants, shops, offices, theatres, cinemas, agricultural enterprises, etc. must limit their monthly consumption of energy to 50% of the units used in the corresponding month of 1942, as they are shown in the bills issued by the supply Companies. When the consumption is measured in periods longer than a month, the units consumed in the corresponding period of 1942 will be always taken into consideration. In cases in which the consumption of energy in any period of year 1942 was notably below normal consumption, then the supply Companies will use for purpose of comparison the average consumption of other consumers of the same category.

Declassified E.O. 12356 Section 3.3/NND No. 785019

for light and domestic uses, converted with modifications into law on June 13, 1942, No. 850.

Having seen the law 6 July 1941 no. 645, containing legal instructions concerning production, supply, consumption of goods, services and labor.

Having seen article 13 of the Law, No. 129, 12 Jan. 1939.

Having Seen the Royal Decree No. 2/B, Oct. 30, 1943

Considered that there is a state of emergency due to the war
Having heard the Council of Ministers;
Following the proposal of the Minister of Public Works, in agreement with the Ministers of Finance and Industry, Commerce and Labor:

WE HAVE ENACTED AND WE ENACT:

ART. 1

The consumers of electricity used for lighting of private homes, industrial plants, shops, offices, theatres, cinemas, agricultural enterprises, etc. must limit their monthly consumption of energy to 50% of the units used in the corresponding month of 1942, as they are shown in the bills issued by the supply Companies. When the consumption is measured in periods longer than a month, the units consumed in the corresponding period of 1942 will be always taken into consideration. In cases in which the consumption of energy in any period of year 1942 was notably below normal consumption, then the supply Companies will use for purpose of comperison the average consumption of other consumers of the same category.

ART. 2°

For new consumers of energy used for lighting wired after the publication of this Decree and for all other consumers for which there are no comparing 1942 records, the supply Companies, shall fix, in a complementary contract and on the basis of the consumption permitted to similar classes of consumers, the maximum monthly amount of energy that these consumers will be allowed to use.

ART. 3°

The distributing Companies will have to supply, when requested, such information and data that may enable the customers to comply with the instructions of the present decree.

EXHIBIT NO. 8
page 1 of 5 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

ART. 4°

Seven days following the date of the publication of this decree and until further notice it is forbidden:

(1) The use of electricity, for lighting show windows, display cases and any other electric sign;

(2) The use of electricity for whatsoever domestic use, such as heating, kitchen, water heater, bath heater, etc. with the sole exception mentioned in Art. 5.

(3) The use of electricity for the operation of Elevators.

ART 5°

The provisions of Para 2 of the preceding article do not apply to electric kitchens for those consumers unable to use gas, limiting however their monthly consumption to a maximum of 200 Kwh. The electric companies will take the necessary steps to see that it is impossible for consumers not authorized to use it, to consume energy for domestic-electric appliances, Elevators and other uses not allowed, as provided by Art. 4 and by the preceding para.

ART. 6°

Every commercial user of electricity for purposes other than lighting, such as bars, cinemas, theatres, etc., shall reduce his monthly consumption of electricity to 75% of the amount consumed during the corresponding month of the year 1942, as shown in the bill issued by the supply companies. To these users apply also the same regulations, contained in articles 1 and 2 of the present Decree, indicating the manner of fixing the 1942 consumption, for comparison purposes.

ART. 7°

Every user of electricity for industrial purposes, other than those listed in the preceding Articles, shall apply in writing, in duplicate, to his Supply Company, not later than seven days after the publication of the present Decree asking for the continuance of his electric supply and showing the reason for that. Applications for the continuance of the supply of power shall contain: name and address of the user, brief description of industrial operations and products manufactured and installed capacity, in HP. The supply Company will forward one copy of the application, within 7 days after it was submitted, together with technical data referring to the application itself, to the

Declassified E.O. 12356 Section 3.3/NND No. 785019

ART 5°

The provisions of Para 2 of the preceding article do not apply to electric kitchens for those consumers unable to use gas, limiting however their monthly consumption to a maximum of 200 Kwh. The electric companies will take the necessary steps to see that it is impossible for consumers not authorized to use it, to consume energy for domestic-electric appliances, Elevators and other uses not allowed, as provided by Art. 4 and by the preceding para.

ART. 6°

Every commercial user of electricity for purposes other than lighting, such as bars, cinemas, theatres, etc., shall reduce his monthly consumption of electricity to 75% of the account consumed during the corresponding month of the year 1942, as shown in the bill issued by the supply companies. To these users apply also the same regulations, contained in articles 1 and 2 of the present Decree, indicating the manner of fixing the 1942 consumption, for comparison purposes.

ART. 7°

Every user of electricity for industrial purposes, other than those listed in the preceding Articles, shall apply in writing, in duplicate, to his Supply Company, not later than seven days after the publication of the present Decree asking for the continuance of his electric supply and showing the reason for that. Applications for the continuance of the supply of power shall contain: name and address of the user, brief description of industrial operations and products manufactured and installed capacity, in HP. The supply Company will forward one copy of the application, within 7 days after it was submitted, together with technical data referring to the application itself, to the Provincial Commission, mentioned in Art. 8.

This Commission will decide on the advisability of the continuance of power supply and will notify accordingly the interested parties. A list of customers, whose operation is considered essential, will be permitted, together with the name, address and information on their activity, to the Central Commission, as in Art. 9.

The electric supply will be discontinued to consumers whose operations will not be considered essential, fourteen days after the date of such notice by the Commission.

EXHIBIT NO. 8
page 2 of 5 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Where no application is received as provided for by paragraph I, it will be understood that the supply of power is no longer required and the supply Company will, without further notice, suspend the service.

ART. 8

For the regulation and control of electricity distribution and utilization and for the carrying out of the instructions of the present Decree, Provincial Commissions are formed in the Provincial Council of Economy in each provincial head town, as well as one Central Commission in the Ministry of Public Works. The Provincial Commissions are appointed by the Prefect of the Province and are constituted as follows:

(1) A Prefettura Counsellor, as President;

(2) A technical official of Genio Civile;

(3) An official of the Provincial Council of Economy;

(4) A representative of the producing and distributing electric companies;

(5) A representative of the industrial companies using electric power.

The Central Commission is appointed by Ministerial Decree of the Minister of Public Works and is so formed:

(1) A technical official of the Ministry of Public Works, expert in electrical matters, as President;

(2) an administrative official of the Ministry of Public Works;

(3) a technician appointed by the Ministry of Industry, Commerce and Labor;

(4) an administrative official of the Ministry of Industry, Commerce and Labor;

(5) a representative of the producing and distributing electric companies using electric power.

(6) a representative of the industrial companies.

Declassified E.O. 12356 Section 3.3/NND No. 785019

the present Decree, Provincial Commissions are formed in the Provincial Council of Economy in each provincial head town, as well as one Central Commission in the Ministry of Public Works. The Provincial Commissions are appointed by the Prefect of the Province and are constituted as follows:

(1) A Prefettura Counsellor, as President;

(2) A technical official of Genio Civile;

(3) An official of the Provincial Council of Economy;

(4) A representative of the producing and distributing electric companies;

(5) A representative of the industrial companies using electric power.

The Central Commission is appointed by Ministerial Decree of the Minister of Public Works and is so formed:

(1) A technical official of the Ministry of Public Works, expert in electrical matters, as President;

(2) an administrative official of the Ministry of Public Works;

(3) a technician appointed by the Ministry of Industry, Commerce and Labor;

(4) an administrative official of the Ministry of Industry, Commerce and Labor;

(5) a representative of the producing and distributing electric companies using electric power.

(6) a representative of the industrial companies.

ART. 9°

Within fourteen days, following the publication of the present Decree the Prefetti together with the representatives of electric transportation public services, will set up a plan, assisted by the Provincial Commission mentioned in Article 8, for the coordination of daily requirement of electric power for these services in order to obtain the maximum possible economy. They will submit this plan to the Central Commission.

EXHIBIT NO. 8
Page 3 of 5 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Decisions taken by the above mentioned Provincial Commissions will be effective without further approval, when concerning services operating in the respective provinces, while those concerning interprovincial services will only be effective after approval by the Central Commission.

ART. 10

The Prefetti, within fourteen days after the publication of the present Decree, in agreement with the Commission provided for by Article 8, will issue special regulations concerning the period and duration of the hours of activity of those industrial enterprises for the operation of which, under article 7, the continuance of the supply of electric power was considered essential. Provisions relating to the above will be followed by the Provincial Commissions.

ART. 11

Claims against the decisions and measures taken by the Provincial Commissions are accepted only within 10 days by the Central Commission which will decide and issue the final statement. The Commissions will decide according to the absolute majority of votes.

In case of tie vote, the Chairman's vote will decide. Decisions taken will be effective if at least four members are present.

ART. 12

For the duration of the present Decree minimum units of energy consumption, flat rates for installed capacity and any other fixed rate applied to any category of users as provided by any contract existing between the supply companies and users affected by the present Decree, will be reduced to the same percentage of reduction in the power consumption in view of the above limitations and be abolished for any period of total suspension of the supply of electricity.

ART. 13

Regulations contained in the articles of the present Decree do not apply to electricity used for lighting and power by: hospitals, nursing homes and first aid stations, offices and laboratories of doctors and dentists, churches, military establishments, railway services, telephone, telegraph, radio communication, broadcasting, gas works, aqueducts, sewage collection [illegible]

Declassified E.O. 12356 Section 3.3/NND No. 785019

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ART. 14

The provisions of the present Decree do not apply to:

(1) Provinces of Sicily, Sardinia and other islands of the Kingdom.

(2) Industrial Companies which, for their operations, are using electricity produced directly by them, provided their electric installations are not connected with the distribution systems. But in case their installations are or can be connected with the supply companies distribution line they will have to comply with the regulations of the present Decree and to place at the disposal of the only electric companies with whom they can be connected, any amount of energy not used for their own operation.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ART. 15

To users who fail to obey the regulations of the present Decree or who attempt in any way to make a false record of their consumption of electric energy, the supply of electricity will be discontinued, without further notice, by the supply company.

ART. 16

The Commissions provided for by Art. 8 will take decisions on all cases concerning the present Decree and not explicitly contemplated by the preceding articles.

ART. 17

The present Decree which comes into force on the day of its publication in the special edition of the Gazzette Ufficiale, will be submitted to the Legislative Assemblies in order to be converted into law.

The proposing Minister of Public Works is authorized to submit the relative scheme of law. We order everybody concerned to obey the present Decree and to enforce it as a Law of the State.

VICTOR EMANUEL

Salerno 3 April 1944

Declassified E.O. 12356 Section 3.3/NND No. 785019

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VICTOR EMMANUEL

Salerno 5 April 1944

EXHIBIT NO. 8
Page 5 of 5 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

RESTRICTED

ALLIED FORCE HEADQUARTERS
APO 512

AG/575/171 (DS-)

31 October 1944

Subject: Conservation of electric power facilities of Italian Utilities

To : ALL CONCERNED

1) - A critical shortage of electric utility service exists throughout wide sections of occupied Italy. In order to conserve the limited supply of electric power available, and in order to meet the increasing military and essential civilian requirements, it is necessary that all possible means be utilized to reduce non-essential electric consumption from utility sources, by both military and civilian users in Italy.

2) - The following steps will be taken to reduce loads on commercial electric systems:

(a) - LIGHTING

(1) Offices - No lights will be burned during day-light hours except in cases where natural lighting is insufficient for proper working conditions. Wattage of lamps will be limited to a minimum requirement, and fixtures will be located for most economical utilizations of light source.

(2) Halls and Stairways - Lamps in halls, corridors and stairways will be of the smallest wattage commensurate with safety, and a minimum number will be illuminated.

(3) Hotel rooms, and private living quarters - No more than two (2) lamps per private living room or one (1) lamp per bath room will be permitted to be connected. No more than one (1) lamp per private living room will be illuminated at the same time. The lamp bulb will not exceed 60 watt rating. Lighting, when permitted in living tents of military personnel, will be limited to one (1) lamp of 60 watt rating in pyramidal or small wall tent.

(4) Public Space in hotels, cafes, clubs and public buildings - Reduce wattage to a bare essential commensurate with area, use and occupancy. Discontinue all electric signs or display lighting.

(5) Other Military facilities - Lighting of mess halls, kitchens, work shops, etc. will not exceed the following

Declassified E.O. 12356 Section 3.3/NND No. 785019

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(4) Public Space in hotels, cafes, clubs and public buildings - Reduce wattage to a bare essential commensurate with area, use and occupancy. Discontinue all electric signs or display lighting.

(5) Other Military facilities - Lighting of mess halls, kitchens, work shops, etc. will not exceed the following scale:

Type of Accommodation	Watts per sq. ft.
Store Room, Latrine.....	0,2
Mess halls, Post Exchange,) Hospital Ward, Bath House)	0,3
Kitchen, Recreation Building	0,5

(6) Outdoor areas - Guarded areas, POW enclosures, storage areas, streets, etc., will be lighted only in accordance with necessity.

(7) Turn off of all lights not in use - Post signs conspicuously and make every individual economy-minded in use of electricity.

EXHIBIT NO. 9
Page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

(b) - HEATING AND COOKING

(1) Electric heating will be permitted only in essential industrial processes engaged in production for the military effort, and in hospitals for the treatment of patients.

(2) No electric cooking will be permitted.

(c) - POWER

(1) The use of electric power will be limited to:
(a) Those industries contributing directly to the military effort or essential to the civilian economy.

(b) Installations necessary to safeguard public health.

(2) Elevators will be operated by electric power only for movement of hospital patients or for heavy freight.

(3) No electric motors will be allowed to idle for extended periods.

(d) - ELECTRIC RAILWAY POWER

Will be utilized only on approval by the Electric Power Committee of the A.F.L.R. (Italian) Board.

(e) - ELECTROLYTIC PROCESSES AND ELECTRIC ARC FURNACES

Will be utilized only on approval by the Electric Power Committee of the A.F.L.R. (Italian) Board.

3) - Military Commanders will be responsible that these instructions are carried out within their jurisdiction of military installations, and civilian authorities will be required to enforce similar measures in those civilian installations which are allowed to receive electric service.

By command of General WILSON

(Sgd.) H.V. ROBERTS
Colonel, AGD
Adjutant General

Declassified E.O. 12356 Section 3.3/NND No. 785019

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(Sgd.) H.V. ROBERTS
Colonel, AGD
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EXHIBIT NO. 9
Page 2 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

HEADQUARTERS
ALLIED MILITARY GOVERNMENT
LOMBARDIA REGION
APO 394

REGIONAL ORDER No. 16

ARTICLE N. 1:

Regional Order No. 14 dated 26 November 1945 and amendments thereto are rescinded and superceded by the following order which will be effective from 13 December 1945 until otherwise ordered.

The provisions of this order are applicable throughout Lombardia Region.

ARTICLE No. 2:

The territory served by electric companies will be divided into three areas convenient to the transmission and distribution nets. The companies furnishing and distributing electrical energy will suspend to all consumers by turn the supply of power during the hours from 0730 to 1700 and for two consecutive working days in each area weekly.

When cutting off distribution nets the supplying firms will ensure the supply of electric power to public services, hospitals, port installations, and essential Military installations and where technically possible to those industries of a continuous cycle of operation and as provided in articles 3, 5 and 6.

ARTICLE NO. 3:

All industrial consumers and public services, excluding street lighting, will reduce their monthly consumption to 75% of that used during November 1945 without taking into consideration seasonal or provisional loads, or energy used for production of vapour, subject to changes in allotments to be established by the Economic Commission for North Italy of the Allied Military Government through the North Italy Industrial Council.

Railway and tramway electrical consumption for traction purposes will not be reduced under the provisions of this decree nor that of flour mills and bread bakeries who will, however, reduce to 75% of their electric lighting and

Declassified E.O. 12356 Section 3.3/NND No. 785019

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When cutting off distribution nets the supplying firms will ensure the supply of electric power to public services, hospitals, port installations, and essential Military installations and where technically possible to those industries of a continuous cycle of operation and as provided in articles 3, 5 and 6.

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Railway and tramway electrical consumption for traction purposes will not be reduced under the provisions of this decree nor that of flour mills and bread bakeries who will, however, reduce to 75% of their electric lighting and eliminate all electrical space heating.

ARTICLE NO. 4:

Electrical energy will not be used for the production of water vapour.

ARTICLE No. 5:

Monthly electrical energy consumption in public buildings, office buildings, theaters, movies, night clubs, stores, bars, restaurants, hotels, dance halls and other public places of gathering will be limited to 70% of the KWH used during November 1945. All other consumers not mentioned elsewhere in this order, but including domestic and private, consuming more than 125 KWH monthly will reduce their consumption to 70% of the November 1945 consumption, but it will not be necessary to reduce the monthly consumption below 125 KWH.

EXHIBIT NO. 10
Page 1 of 3 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Consumers who consumed less than 125 KWH during November 1945 will not exceed that month's consumption monthly. All theaters, movies, night clubs, stores, bars, restaurants, dance halls, and all other public places of gathering will not use electrical energy from 2300 hours to 0800 hours except as may be required for minimum safety purposes.

ARTICLE N. 6:

Monthly electrical energy consumption for city and village light will be reduced to 70% of that consumed during the month of November 1945. Electric flood lights are forbidden except when required for public safety, ports, railways, public utilities and essential work purposes, including property protection.

ARTICLE No. 7:

The use of electrical energy under any condition for the following is forbidden:

a) Window and display lights,
b) Amusement parks and playgrounds,
c) Commercial signs,
d) Heating in stores, night clubs, theaters, movies, bars, dance halls, and industrial shops and plants.

ARTICLE N. 8:

To all users who fail to observe and abide by the provisions of this order and regulations issued thereunder, the supplier will suspend the furnishing of electrical energy for a period of from one to four weeks and at the same time in the case of industrial consumers advise "Ispettorato del Lavoro".

In the case of consumers specified in Art. 5 the supplier will advise the Prefect of such action.

ARTICLE N. 9:

All Electric Companies will, without delay, pool their available energy to augment the general electricity supply.

ARTICLE N. 10:

All self-producers of electrical energy that are or can be connected with other major transmission and dis-

Declassified E.O. 12356 Section 3.3/NND No. 785019

property protection.

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In the case of consumers specified in Art. 5 the supplier will advise the Prefect of such action.

ARTICLE N. 9:

All Electric Companies will, without delay, pool their available energy to augment the general electricity supply.

ARTICLE N. 10:

All self-producers of electrical energy that are or can be connected with other major transmission and distribution nets, will, after complying with the provisions of this order, make any excess energy available as required by Art. 9.

ARTICLE N. 11:

Any request for exception by industrial consumers to the obligations as required by provisions of this order and regulations issued thereunder will be dealt with by the "Ispetterato del Lavoro" who will consult electric Companies concerned before taking action.

EXHIBIT NO. 10
Page 2 of 3 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Upon failure of agreement the case will be referred to the Economic Commission for North Italy of the Allied Military Government through the North Italy Industrial Council for final decision.

However, the provisions of this order will be complied with in all cases until final action is taken, on any exception.

ARTICLE N. 12

In addition to penalties referred to in Article n. 8, any contravention of this order will render the offender or the offenders liable to prosecution under existing legislation.

Col. A. H. HANCOCK
Regional Commissioner
Lombardia Region.

EXHIBIT NO. 10

page 3 of 3 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

D E C R E E

15 February 1946

The Regional Commissioner on Electric Power for Liguria, Piemonte, Lombardia, Emilia, Veneto and Venezia Tridentina;

having considered the present situation for the generation and demand of electric power,

having considered the necessity of rendering uniform all over the Northern Italy Territory the limitations now in force for the use of electric power,

By virtue of the power which was conferred to him by the D.L.L. 29/1/1946.

Enacts what follows.

Art. 1

Starting from February 15, 1946, the rules for the discipline of generation and use of electric power are rendered uniform all over the Northern Italy territory, not including Venezia Guilia and Udine province, in compliance with the modalities fixed by the following articles.

Art. 2

It is forbidden the use of electric power for the following purposes:

(a) Electric boilers for steam generation

(b) Heating of night clubs, dancing halls, gaming rooms, movie halls, theatres, coffee rooms, restaurants, shops, public buildings, workshops and industrial plants.

(c) Advertising and commercial signs.

(d) Direct or indirect lighting of shop windows.

(e) Flood lights, except those employed for public safety, port or railway installations and public utilities.

Art. 3

The territories served by the Electric Companies distributing power will, according to the conditions of the distributing

Declassified E.O. 12356 Section 3.3/NND No. 785019

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(c) Advertising and commercial signs.

(d) Direct or indirect lighting of shop windows.

(e) Flood lights, except those employed for public safety, port or railway installations and public utilities.

Art. 3

The territories served by the Electric Companies distributing power will, according to the conditions of the distributing networks, be divided in three areas; in each one of these the electricity supply will be suspended by turns, every week for two consecutive work days running, from 0730 to 1300 hours.

During that period of disconnection, the distributing Companies will provide the supply of electric power to public utilities, hospitals, port and essential military installations and, when technically possible, to industries working on a continuous cycle of operation, remaining fixed, also for this category of customers, the limitation considered by the present decree.

EXHIBIT NO. 11
Page 1 of 3 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Art. 4

All consumers of electric power will reduce their monthly consumption, as compared to that of November 1945, by limiting it to the following percentage:

(a) Industries: 75%. It is understood that the November 1945 figures will not include seasonal and temporary loads and those due to steam generation.

The limitations will not apply to cereal mills and bakeries which, on the other hand, will have to reduce to 75% the consumption by auxiliary services.

(b) City streetcars and trolley bus: 80%. In order to achieve this, they will have to reduce the work day service during the hours of lesser traffic and the feast day service during all day.

(c) Street lighting: 70%.

(d) Public buildings, offices, shops, hotels, restaurants: 70%.

(e) Coffee rooms, theatres, movie halls, entertainment parks, playing grounds: 40%.

(f) Dancing halls, gaming rooms and other night clubs: 20%.

(g) All the other customers, including private customers, who, during November 1945, consumed more than 250 Kwh: 50%. Those who, during November 1945 consumed from 125 to 250 Kwh will reduce their monthly figure to 125 Kwh, those who consumed less than 125 Kwh during November 1945 will not exceed the amount consumed during that month.

Supply to public utilities not considered in this article is to be excluded from the above limitations.

Art. 5

All the restaurants, coffee rooms, theatres, movie halls, entertainment parks, dancing rooms, gaming rooms, night clubs and other public clubs in general, will not absorb any power from 2200 to 0500 hrs.

Declassified E.O. 12356 Section 3.3/NND No. 785019

The limitations will not apply to cereal mills and bakeries which, on the other hand, will have to reduce to 75% the consumption by auxiliary services.

(b) City streetcars and trolley bus: 80%. In order to achieve this, they will have to reduce the work day service during the hours of lesser traffic and the feast day service during all day.

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Supply to public utilities not considered in this article is to be excluded from the above limitations.

Art. 5

All the restaurants, coffee rooms, theatres, movie halls, entertainment parks, dancing rooms, gaming rooms, night clubs and other public clubs in general, will not absorb any power from 2200 to 0500 hrs. Restaurants and coffee rooms at railway stations are to be excepted. Shops will shut off their demand of electric power from 1900 hours to 0600 hours, except that minimum required for safety measures.

Art. 6

The reduction to 75% of the monthly consumption, as compared to November 1945 figures also applies to water right customers and to distributing companies actually purchasing the whole or part of the power from other companies. For these distributing companies, a tolerance of 7.5% is permitted in connection with the power taken from other companies.

EXHIBIT NO. 11
Page 2 of 3 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Art. 7

The electric power consumption may be checked every week by the distributing companies. Weekly consumptions have to be proportioned, except in case of special technical reasons, to the monthly consumption allowed by the present Decree.

Art. 8

All the electric power generating companies will pool the available power in order to improve the overall distribution.

The self-producers of electric power who are, or can be, connected to other transmission or distribution systems, will feed into those systems the surplus of power, after they have complied with the limitations of demand considered by the present Decree.

Art. 9

All the applications for derogation from the present Decree will be forwarded to the Provincial Commissions for Electric Power, established and ruled by R.D.L. 3/4/1944 no. 95, through the Ispettorati del Lavoro which will express their opinion.

Claim is permitted, against the decisions and the measures taken by the Provincial Commission, within the term of 10 days; this will be transmitted to the Regional Commissioner on Electric Power for Northern Italy.

Claims do not have any suspensive effect.

Art. 10

The Companies supplying electric power will, without delay, ascertain any infringement to the present Decree and will consequently discontinue the supply to the infringer, also immediately reporting on that to the Provincial Commission shown in the preceding article, and to the Prefect and to the Ispettorato del Lavoro in case of industrial customers, and to the Questore in case of customers whose category is shown in letter (d), (e), (f) of art. 4.

The Provincial Commission will fix the period during which the power supply is to be discontinued, but this will not exceed four weeks.

Declassified E.O. 12356 Section 3.3/NND No. 785019

available power in order to improve the overall distribution.

The self-producers of electric power who are, or can be, connected to other transmission or distribution systems, will feed into those systems the surplus of power, after they have complied with the limitations of demand considered by the present Decree.

Art. 9

All the applications for derogation from the present Decree will be forwarded to the Provincial Commissions for Electric Power, established and ruled by R.D.L. 3/4/1944 no. 85, through the Ispettorati del Lavoro which will express their opinion.

Claim is permitted, against the decisions and the measures taken by the Provincial Commission, within the term of 10 days; this will be transmitted to the Regional Commissioner on Electric Power for Northern Italy.

Claims do not have any suspensive effect.

Art. 10

The Companies supplying electric power will, without delay, ascertain any infringement to the present Decree and will consequently discontinue the supply to the infringer, also immediately reporting on that to the Provincial Commission shown in the preceding article, and to the Prefect and to the Ispettorato del Lavoro in case of industrial customers, and to the Questore in case of customers whose category is shown in letter (d), (e), (f) of art. 2.

The Provincial Commission will fix the period during which the power supply is to be discontinued, but this will not exceed four weeks.

The infringers will anyway provide the recovery of the excess of power consumed, when service is restored.

Art. 11

Beside the sanctions shown in the preceding article, any violation to the rules of this Decree, whoever the infringer may be, will be punished as by law enacted.

The Commissioner

Ercole Bottani

Milan, 15 February 1946

EXHIBIT NO. 11

Page 3 of 3 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Lieutenant's Decree - 1 March 1946 - Published 20 March 1946

-----having seen Art. 132 of the law on waters and electric plants, approved by the Royal Decree 11 December 1933 no. 1775;

Considering that, due to insufficient availability of electric power in the Southern and Central Italy regions, it is necessary and urgent to adopt measures to regulate the generation and utilization of electricity in a uniform way;

Having heard the Council of Ministers;

Following the proposal of the Minister of Public Works in agreement with the Minister of Industry and Commerce;

We have enacted and enact as follows:

Art. 1

Dr. Eng. ENEA VIRGILI is appointed Regional Commissioner for Toscana, Romagna, Marche, Umbria, Lazio, Abruzzi e Molise, Puglie, Campania, Lucania, Calabria and will have the power to adopt, in those regions, all the measures required to secure the continuity of production, the best utilization and any possible and inevitable curtailment of electric power consumption.

Art. 2

The Commissioner has large power as far as inspection and control on generation and consumption of electricity are concerned.

Art. 3

It is a purpose of the Regional Commissioner to alter the rest-day shifts in the industrial works using electric power and to provide shifting and limitation of consumption in the distribution of electric power as well as suppression and reduction of special categories of users, keeping in mind the instructions of the Royal Legal Decree 3 April 1944, no. 95.

The Commissioner may order interchanges of power to producers and distributors of electric power. He may also provide for the carrying out, by the owners of electric plants, of all necessary works to improve the production and distribution of electric power as well as for the operation of thermal plants.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Following the proposal of the Minister of Public Works in agreement with the Minister of Industry and Commerce;

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The Commissioner may order interchanges of power to producers and distributors of electric power. He may also provide for the carrying out, by the owners of electric plants, of all necessary works to improve the production and distribution of electric power as well as for the operation of thermal plants.

Art. 4

Claims against the measures taken by the Regional Commissioner are only accepted within one month, by the Minister of Public Works who will take the final decision, having heard the Central Commission, as shown in Art. 8 of Royal Legal Decree 3 April 1944 no. 95.

Claims do not suspend the application of the measures.

Art. 5

The functions of the Regional Commissioner will end on 30 October 1946.

EXHIBIT NO 12
page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

All the expenditures for the functions of the Regional Commissioner will be charged to para no. 30 of the programme for estimated expenditures of the Ministry of Public Works for the present as well as for 1946--1947 financial year.

The proposing Minister will carry out the present Decree.

Rome - 1 March 1946

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

Exhibit "A"

UTILITY COMPANIES APPLYING FOR RATE ADJUSTMENTS
SHALL INCLUDE WITH THEIR APPLICATIONS :

1) - A complete financial statement of the preceding fiscal year, listing all assets and liabilities. Include estimates of war damage based on 1938 values.

2) - A Profit and Loss Statement for: (similar to exhibit B)

(a) - The last fiscal year.
(b) - The most recent billing period.

3) - Brief description of company including the following:

(a) - Names and addresses of Directors and Principal Officers.
(b) - Territory served.
(c) - Number of customers.
(d) - Financial organization.
(e) - Statal, Para-Statal, or privately owned company.

4) - Affidavit from President or Acting Director certifying to accuracy of information submitted.

Original applications to include all foregoing items. Subsequent applications to include Profit and Loss Statements for most recent billing period only, except where changes in other data have occurred.

After surcharge is approved company must file Profit and Loss Statement for each billing period. The income account or such statements to show separately:

(a) - Income based on basic rates, and
(b) - additional income resulting from surcharge.

5) - DO NOT include any data based on estimates of future operations.

Declassified E.O. 12356 Section 3.3/NND No. 785019

(a) - The last fiscal year.
(b) - The most recent billing period.

3) - Brief description of company including the following:

(a) - Names and addresses of Directors and Principal Officers.
(b) - Territory served.
(c) - Number of customers.
(d) - Financial organization.
(e) - Statal, Para-Statal, or privately owned company.

4) - Affidavit from President or Acting Director certifying to accuracy of information submitted.

Original applications to include all foregoing items. Subsequent applications to include Profit and Loss Statements for most recent billing period only, except where changes in other data have occurred.

After surcharge is approved company must file Profit and Loss Statement for each billing period. The income account or such statements to show separately:

(a) - Income based on basic rates, and
(b) - additional income resulting from surcharge.

5) - DO NOT include any data based on estimates of future operations.

EXHIBIT NO. 13
page 1 of 3 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Exhibit "B"

PROFIT AND LOSS STATEMENT

Name of Company _____

Period : from _____ 194__ to _____ 194__

Operating INCOME

Sales of (gas, water, electricity)	_____	
Interest received.....	_____	
Dividends received.....	_____	
Other income.....	_____	
	_____	
	_____	
	_____	
TOTAL		_____

Operating EXPENSES (ϕ)

Payroll executive officers.....	_____
Wages.....	_____
Salaries.....	_____
Social Insurance and benefits.....	_____
Fuel.....	_____
Purchased power.....	_____
Supplies (required for operations)	_____
Transportation (owned or rented by Company).....	_____
Miscellaneous.....	_____

Declassified E.O. 12356 Section 3.3/NND No. 785019

Interest received..... _____

Dividends received..... _____

Other income..... _____

_____

_____

_____

TOTAL _____

Operating EXPENSES (ϕ)

Payroll executive officers..... _____

Wages..... _____

Salaries..... _____

Social Insurance and benefits..... _____

Fuel..... _____

Purchased power..... _____

Supplies (required for operations) _____

Transportation (owned or rented by Company)..... _____

Miscellaneous..... _____

Taxes..... _____

Interest on short term loans..... _____

TOTAL _____

Interest on bonds and long term loans..... _____

Depreciation and renewals..... _____

(ϕ) - Include only expenses normally charged to operations, attach separate statement describing abnormal or unusual expenditures, such as repairs to war damage, etc.....

EXHIBIT NO. 13

Declassified E.O. 12356 Section 3.3/NND No. 785019

Exhibit "C"

A F F I D A V I T

I _____

President of the _____

do hereby solemnly swear that all the statistics I have submitted to the Allied Commission in regard to the operations of the _____, with particular reference to the Profit and Loss Statements for the periods _____ are true and correct in every way to the best of my knowledge and belief.

Name _____

Title _____

Date _____

Attest:

The above signatory appended his signature in my presence this day _____

Declassified E.O. 12356 Section 3.3/NND No. 785019

President of the _____

do hereby solemnly swear that all the statistics I have submitted to the Allied Commission in regard to the operations of the _____, with particular reference to the Profit and Loss Statements for the periods _____ are true and correct in every way to the best of my knowledge and belief.

Name _____

Title _____

Date _____

Attest:

The above signatory appended his signature in my presence this day _____

_____
(Signed)

EXHIBIT NO 13

page 3 of 3 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

ALLIED MILITARY GOVERNMENT
LOMBARDIA REGION

REGIONAL ORDER NO. 17

PURSUANT to Regional Order No....dated..... after consultation with the competent authorities, it is hereby ordered:

Art. 1

All consumers of electric power for all purposes within the territories of the Provinces of Piemonte, Liguria, Lombardia, Venezia and Emilia will contribute to the repayment of costs for thermo-electric power supplied during the period as from 1st December 1945 to 30th April 1946, as stated hereafter.

Art. 2

The charges to be repaid are made up by the cost at the power house of the fuel actually consumed and by a share of the working expenses of 25 cent. for each Kwh of the power actually produced thermally and measured at the power house.

Art. 3

All concerns supplying electric power will apply to consumers as from 1st December 1945 an overcharge of: 30 cent. for each Kwh of actual consumption not exceeding 15,000 Kwh per month. 15 cent. for each Kwh actually consumed monthly over and above the 15,000 Kwh mentioned above.

The aforesaid overcharge is not applicable in respect of:

(a) Self-producers who utilize in their own factories electric power of their own production only.

(b) Consumers of summer power who for contingent reasons and in agreement with the competent authorities shall be connected before the 30th April 1946.

In case of supply by contract the consumption will be calculated on the same principles as done for the application of government tax on electric power consumption.

At the end of the thermal-electric operation period the adjust-

Declassified E.O. 12356 Section 3.3/NND No. 785019

for thermo-electric power supplied during the period as from 1st December 1945 to 30th April 1946, as stated hereafter.

Art. 2

The charges to be repaid are made up by the cost at the power house of the fuel actually consumed and by a share of the working expenses of 25 cent. for each Kwh of the power actually produced thermally and measured at the power house.

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The aforesaid overcharge is not applicable in respect of:

(a) Self-producers who utilize in their own factories electric power of their own production only.

(b) Consumers of summer power who for contingent reasons and in agreement with the competent authorities shall be connected before the 30th April 1946.

In case of supply by contract the consumption will be calculated on the same principles as done for the application of government tax on electric power consumption.

At the end of the thermal-electric operation period the adjustment will be made.

Art. 4

The electric power suppliers will pay monthly the total amount of the overcharge as per Art. 3 into an account opened jointly in the names of Associazione Nazionale Imprese Distributrici Energia Elettrica and Associazione delle Aziende Industriali Municipalizzate.

Art. 5

From the funds as per Art. 4 the necessary sums will be drawn for the repayment of the thermal-electric suppliers' charges as per Art. 2.

EXHIBIT NO. 14
page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Art. 6

In order to guarantee the proper application of the present decree, there will be instituted a Control Commission composed of Comitato Industriale dell'Elettricita, Comitato Prezzi Alta Italia and of a representative of the Ministry of Public Works.

Art. 7

The two associations, Associazione Nazionale Imprese Distributrici di Energia Elettrica and Associazione Aziende Industriali Municipalizzate are charged with the verification and necessary action for the application of the present decree, as well as with the assignment of the sums as per Art. 5, operating under the control of the Control Commission as per Art. 6, to whom they are responsible, submitting to the said Commission for its approval all calculations and data necessary for the performance of their duties.

Art. 8

All concerns producing electric power and thermo-electric power are held to submit all details necessary for the above purpose, to the representatives of the two aforesaid Associations, who are entitled to make the proper verifications on the spot.

A. N. HANCOCK
Colonel
Allied Military Government

Declassified E.O. 12356 Section 3.3/NND No. 785019

Municipalizzate are charged with the verification and necessary action for the application of the present decree, as well as with the assignment of the sums as per Art. 5, operating under the control of the Control Commission as per Art. 6, to whom they are responsible, submitting to the said Commission for its approval all calculations and data necessary for the performance of their duties.

Art. 8

All concerns producing electric power and thermo-electric power are held to submit all details necessary for the above purpose, to the representatives of the two aforesaid Associations, who are entitled to make the proper verifications on the spot.

A. N. HANCOCK
Colonel
Allied Military Government

EXHIBIT NO. 14
page 2 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

EXTRACTS FROM DECREE NO. 367 - 1 NOV. 1944

Article 2

The Minister of Treasury is authorized to grant the subsidiary guarantee of the State, up to 2 billions lire, to Institutes of Credit of Public Law and to Public Law Bodies operating on personal property credits, for advance financing of industrial enterprises which are of special interest in the rehabilitation of the civil life and of the economy of liberated territories. The financing will be fixed by the decree concerning the guarantee of the loan and the State contribution to interests, as shown in Article no. 4.

Article 3

The mentioned advance financing are to be authorized by the Minister of Treasury, in agreement with the Minister of Industry and Commerce and other interested Ministers, after the recommendation by a Committee which will be formed by Decree of the Minister of Treasury and will include representatives of those Bodies.

Article 4

The State will contribute, for a period of no more than 4 years, to the payment of the interests relating to the advance financing as in Article no. 2. The Minister of Treasury, having agreed with other Ministers as in Article 3, will fix, each time that a certain method of operation is approved, the extent of State contribution to the interests; this contribution will not exceed 3% yearly.

At the expiration of the period during which the above contribution was granted, the advance financing, if not reimbursed will be consolidated into a loan by the same Institute or Body which had granted it, except different decision of the Minister of Treasury in case any other Institute or Body, among those mentioned in Article 2, would like to take the responsibility of operation.

In case of consolidation, the Minister of Treasury himself, having heard the interested Institute or Body, will fix the duration of the redemption and the interest, also in consideration of the economic market situation. He will also arrange for the possible limitation of the same loan to only part of the advance financing. In that case, if the difference is not reimbursed to the financing Institute or Body, by the Industrial Company, no consolidation will

Declassified E.O. 12356 Section 3.3/NND No. 785019

which are of special interest in the rehabilitation of the civil life and of the economy of liberated territories. The financing will be fixed by the decree concerning the guarantee of the loan and the State contribution to interests, as shown in Article no. 4.

Article 3

The mentioned advance financing are to be authorized by the Minister of Treasury, in agreement with the Minister of Industry and Commerce and other interested Ministers, after the recommendation by a Committee which will be formed by Decree of the Minister of Treasury and will include representatives of those Bodies.

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At the expiration of the period during which the above contribution was granted, the advance financing, if not reimbursed will be consolidated into a loan by the same Institute or Body which had granted it, except different decision of the Minister of Treasury in case any other Institute or Body, among those mentioned in Article 2, would like to take the responsibility of operation.

In case of consolidation, the Minister of Treasury himself, having heard the interested Institute or Body, will fix the duration of the redemption and the interest, also in consideration of the economic market situation. He will also arrange for the possible limitation of the same loan to only part of the advance financing. In that case, if the difference is not reimbursed to the financing Institute or Body, by the Industrial Company, no consolidation will be made and the whole loan will have to be paid at the expiration, as shown in the preceding paragraph.

Article 5

The subsidiary guarantee of the State, as in Article 2, is to be extended to the main debt, both before and after its consolidation, to the agreed interests and to all expenses shown in Article no. 1942 of Civil Law.

Article 6

Distraining, attachment, opposition and any other obstacle, are not permitted on the granted loan according to the present Decree.

EXHIBIT NO. 15
page 1

Declassified E.O. 12356 Section 3.3/NND No. 785019

DECREE NO. 397

15 November 1944

Art. 1

Of the financing, authorized by Legislative Decree of the Lieutenant General, 1 November 1944 no. 367, there is reserved in favour of Electric Companies, the sum of 500 millions lire, for urgent works concerning the repairs of plants damaged by war action.

Art. 2

The distribution of the sum mentioned in Art. 1, among the regions of Provinces liberated and returned to the Italian Government's Administration on the date of the coming in force of the present Decree, will be effected according to a program to be approved by the Minister of Public Works in agreement with the Minister of Treasury.

Art. 3

By decrees of Minister of Public Works in agreement with the Minister of Treasury the Institutes of Credit may be authorized to effect advance payments in favour of Electric Companies requesting a financial assistance according to the legislative Decree of the Lieutenant General...1 November 1944 no. 367 for an amount not exceeding 75% of the requested financial assistance.

The above decree will fix the interest rate and the other terms of reimbursement to be effected when the final financing is granted.

In case this is not settled within one year from the effected transactions, the reimbursement is to be carried out by the State at the expiration of the foresaid time, except redraft in the way established by the above Decree.

Art. 4

The Minister of Public Works, in agreement with the Minister of Treasury is authorized to grant, by means of his own decrees, immediate advances not exceeding 75% of the amount for progress billings vised by the territorial responsible office of Genio Civile. This will be done only when urgent reasons do not make it possible to apply the transactions mentioned in the preceding article.

Declassified E.O. 12356 Section 3.3/NND No. 785019

reserved in favour of Electric Companies, the sum of 500 millions lire, for urgent works concerning the repairs of plants damaged by war action.

Art. 2

The distribution of the sum mentioned in Art. 1, among the regions of Provinces liberated and returned to the Italian Government's Administration on the date of the coming in force of the present Decree, will be effected according to a program to be approved by the Minister of Public Works in agreement with the Minister of Treasury.

Art. 3

By decrees of Minister of Public Works in agreement with the Minister of Treasury the Institutes of Credit may be authorized to effect advance payments in favour of Electric Companies requesting a financial assistance according to the Legislative Decree of the Lieutenant General...1 November 1944 no. 367 for an amount not exceeding 75% of the requested financial assistance.

The above decree will fix the interest rate and the other terms of reimbursement to be effected when the final financing is granted.

In case this is not settled within one year from the effected transactions, the reimbursement is to be carried out by the State at the expiration of the foresaid time, except redraft in the way established by the above Decree.

Art. 4

The Minister of Public Works, in agreement with the Minister of Treasury is authorized to grant, by means of his own decrees, immediate advances not exceeding 75% of the amount for progress billings vised by the territorial responsible office of Genio Civile. This will be done only when urgent reasons do not make it possible to apply the transactions mentioned in the preceding article.

The reimbursement to the State of the foresaid advances and relative interests will be effected at the same time of the final financing, according to the conditions fixed by the above Decree.

EXHIBIT NO 16
page 1 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Art. 5

The necessary changes of balance will be carried out by means of decrees of the Treasury Minister.

Art. 6

This decree will come in force the day after his publication in the Gazzetta Ufficiale.

We order to whom it may concern, to comply with the present Decree and to enforce it as a law of the State.

Rome, November 15, 1944

Umberto di Savoia

Declassified E.O. 12356 Section 3.3/NND No. 785019

This decree will come in force the day after his publication in the Gazzetta Ufficiale.

We order to whom it may concern, to comply with the present Decree and to enforce it as a law of the State.

Rome, November 15, 1944

Umberto di Savoia

EXHIBIT NO 16
page 2 of 2 pages

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

I T A L Y

Generating Capacity by Area

Name plate ratings expressed in KW for columns 2, 3, 4 and

1 A R E A	2 Original installed capacity		3 Capacity available on liberation		4 Capacity available on 31 Dec. 1945		Unre ty o
	KW	%	KW	%	KW	%	
Sardinia	88,800	100	70,000	79	70,000	79	
Sicily	86,900	100	38,150	44	54,150	62	
Southern Italy	409,500	100	173,300	42	258,850	63	
Central Italy	935,850	100	103,240	11	384,840	41	5
Northern Itely	4,228,550	100	3,741,800	88	4,022,050	95	2
Total	5,749,600	100	4,125,490	72	4,789,890	83	9
State Railways	242,500	100	138,500	57	140,500	58	10
TOTAL ITALY	5,992,100	100	4,263,990	71	4,930,390	82	1,06

Exhibit No. 17 page 1 of 41 pages.

Declassified E.O. 12356 Section 3.3/NND No. 785019

I T A L Y

Generating Capacity by Area

Name plate ratings expressed in KW for columns 2, 3, 4 and 5.

2 Final installed capacity		3 Capacity available on liberation		4 Capacity available on 31 Dec.1945		5 Unrepaired capacity on 31 Dec.1945		6 Remarks
KW	%	KW	%	KW	%	KW	%	
88,800	100	70,000	79	70,000	79	18,800	21	See detail page 2
86,900	100	38,150	44	54,150	62	32,750	38	" " " 3
409,500	100	173,300	42	258,850	63	150,650	37	" " " 5
935,850	100	103,240	11	384,840	41	551,010	59	" " " 10
,228,550	100	3,741,800	88	4,022,050	95	206,500	5	" " " 23
,749,600	100	4,125,490	72	4,789,890	83	959,710	17	
242,500	100	138,500	57	140,500	58	102,000	42	" " " 41
,992,100	100	4,263,990	71	4,930,390	82	1,061,710	18	

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2,000 KW INSTALLED CAPACITY AND HIGHER

(Capacity expressed in KW)

NOTE: The above heading appears at the top of all the following pages, pertaining

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2,000 KW INSTALLED CAPACITY AND HIGHER

(Capacity expressed in KW)

ing appears at the top of all the following pages, pertaining to exhibit h- 17

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 and

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	Estimated
SOCIETA' ELETTRICA SARDA (S.E.S.)									
Coghinas	Sassari	2	15,200	Sept.'43	15,200	0	15,200	0	
Tirso I	Cagliari	3	20,000	Sept.'43	20,000	0	20,000	0	
Tirso II	Cagliari	3	3,500	Sept.'43	3,500	0	3,500	0	
S. Caterina	Cagliari	3	35,300	Sept.'43	23,300	0	23,300	12,000	1
S. Gilla	Cagliari	4	14,800	Sept.'43	8,000	0	8,000	6,800	1
Total S.E.S.			88,800		70,000		70,000	18,800	

Exhibit No. 17 page 2 of 41 pages.

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
.E.S.)								
2	15,200	Sept.'43	15,200	0	15,200	0	-	Hydro
3	20,000	Sept.'43	20,000	0	20,000	0	-	"
3	3,500	Sept.'43	3,500	0	3,500	0	-	"
3	35,300	Sept.'43	23,300	0	23,300	12,000	1946	Steam
4	14,800	Sept.'43	8,000	0	8,000	6,800	1946	Steam
	88,800		70,000		70,000	18,800		

efers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 and

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and Year. KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired capacity on 31 Dec. 1945 KW	Estimated
SOCIETA' GENERALE ELETTRICA DELLA SICILIA (S.G.E.S.)									
Alcantara I	Catania	8	4,800	August'43	4,800	0	4,800	0	
Alcantara II	Catania	8	6,300	August'43	6,300	0	6,300	0	
Cassibile	Siracusa	5	6,400	July '43	6,400	0	6,400	0	
Alto Belice	Palerno	6	10,500	July '43	10,500	0	10,500	0	
S. Carlo	Agrigento	6	6,400	July '43	6,400	0	6,400	0	
Poggiodiana	Agrigento	6	3,750	July '43	3,750	0	3,750	0	
Catania	Catania	8	26,000	August'43	0	3,000 Aug. '43 2,000 Dec. '44 5,000 May '43	10,000	16,000	Dec.

Exhibit No. 17 page 3 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

2 Since	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation, KW	7 Restored capacity Month and year, KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep.cap.	11 Remarks
ICA DELLA SICILIA (S.G.E.S.)									
nia	8	4,800	August'43	4,800	0	4,800	0	-	Hydro
nia	8	6,300	August'43	6,300	0	6,300	0	-	"
cusa	5	6,400	July '43	6,400	0	6,400	0	-	"
rno	6	10,500	July '43	10,500	0	10,500	0	-	"
gento	6	6,400	July '43	6,400	0	6,400	0	-	"
gento	6	3,750	July '43	3,750	0	3,750	0	-	"
ia	8	26,000	August'43	0	3,000 Aug.'43 2,000 Dec.'44 5,000 May '43	10,000	16,000	Dec.'46	Steam

refers to location on Exhibit No. 13 Volume II.

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 and

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and Year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	Rati
Palermo	Palermo	7	12,750	July '43	0	3,500 Sept.'43	3,500	9,250	D
Porto Empedocle	Agrigento	7	10,000	July '43	0	2,500 Oct. '43	2,500	7,500	D
Total S.G.E.S.			86,900		38,150		54,150	32,750	

Exhibit No. 17 page 4 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 13 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

e name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

ce	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep.cap.	11 Remarks
o	7	12,750	July '43	0	3,500 Sept.'43	3,500	9,250	Dec.'47	Steam
nto	7	10,000	July '43	0	2,500 Oct. '43	2,500	7,500	Dec.'47	Steam
		86,900		38,150		54,150	32,750		

4 of 41 pages.
refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

SOUTHERN ITALY

Generating Capacity by Company

(Name plate ratings expressed in KW for columns 2, 3, 4 and 5)

1 Name of Company	2 Original Installed Capacity KW	3 Capacity Available on Liberation KW	4 Available Capacity on 31 Dec.945 KW	5 Unrepaired Capacity on 31 Dec.9 KW
Società Meridionale di Elettricità (S.M.E.)	379,920	173,300	251,550	128,370
Ente Autonomo Volturno (E.A.V.)	29,580	0	7,300	22,280
Total SOUTHERN ITALY	409,500	173,300	258,850	150,650

Declassified E.O. 12356 Section 3.3/NND No. 785019

SOUTHERN ITALY

Generating Capacity by Company

te ratings expressed in KW for columns 2, 3, 4 and 5)

2 riginal nstalled apacity KW	3 Capacity Available on Liberation KW	4 Available Capacity on 31 Dec.945 KW	5 Unrepaired Capacity on 31 Dec.945 KW	6 Remarks
379,920	173,300	251,550	128,370	See detail page 7
29,580	0	7,300	22,280	" " " 6
409,500	173,300	258,850	150,650	

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LA

(Use name plate ratings expressed in KW for columns 4, 6, 7

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on
ENTE AUTONOMO DEL VOLTURNO (E.A.V.)								
Capovolturno	Campobasso	24	22,280	Dec.1943	0	0	0	22,
Doganella	Naples	17	7,300	Oct.1943	0	3,650 Oct.1943 3,650 April '44	7,300	0
Total VOLTURNO			29,580		0		7,300	22,2

Exhibit No. 17 page 6 of 41 pages.

(°) Reference No. Column 3 refers to location on Exhibit No. 13 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

2 Since	3 (c) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
RNO (E.A.V.)									
obesso	24	22,280	Dec.1943	0	0	0	22,280	1947 20,000 1948 2,280	Hydro
les	17	7,300	Oct.1943	0	3,650 Oct.1943 3,650 April '44	7,300	0	-	Diesel
		29,580		0		7,300	22,280		

(c) refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
(Use name plate ratings expressed in KW for columns 4, 6, 7, 8

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera- tion. KW	7 Restored capacity Month and year. KW	Available capacity on 31 Dec. 1945 KW	Unrepaired capacity on 31 Dec. 1945 KW
SOCIETA' MERIDIONALE DI ELETTRICITA' (S.M.E.)								
Aventino	Chieti	24	8,800	June '44	0	4,400 Oct.'45	4,400	4,400
S.Mengo (Calore)	Avellino	18	16,900	Sept.'43	0	8,450 June '45	8,450	8,450
Calusia	Cosenza	11	32,400	Sept.'43	32,400	0	32,400	0
Suio (Garigliano)	Caserta	17	9,700	May '44	0	0	0	9,700
Lete	Caserta	17	8,100	Nov.'43	0	5,350 Sept.'45	5,350	2,750
Matese I	Caserta	17	10,700	Oct.'43	0	5,350 Dec. '43	5,350	5,350

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

ame plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep.cap.	11 Remarks
RICIA' (S.M.E.)								
24	8,800	June '44	0	4,400 Oct.'45	4,400	4,400	1946	Hydro
18	16,900	Sept.'43	0	8,450 June '45	8,450	8,450	-	"
11	32,400	Sept.'43	32,400	0	32,400	0	-	"
17	9,700	May '44	0	0	0	9,700	1947	"
17	8,100	Nov.'43	0	5,350 Sept.'45	5,350	2,750	(°)	Plant rebuilt with lower head and capacity
17	10,700	Oct.'43	0	5,350 Dec. '43	5,350	5,350	(°°)	5,350 KW transferred to Lete

of 41 pages.

ers to location on Exhibit No. 23 Volume II.

(cont.) -1-

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LAR
(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on
Matese II	Caserta	17	8,000	Oct. '43	0	0	0	8,0
Crichella	Cosenza	11	53,000	Sept. '43	53,000	0	53,000	0
Timpagrande	Catenzaro	11	75,800	Sept. '43	75,800	0	75,800	0
Pescara I	Pescara	24	9,900	June '44	0	0	0	9,9
Pescara II	Pescara	24	33,120	June '44	0	0	0	33,1
Pescara III	Pescara	24	22,000	June '44	0	0	0	22,0
Pescara IV	Chieti	24	24,700	June '44	0	0	0	24,7
Tanagro I	Salerno	18	1,800	Sept. '43	1,800	0	1,800	0
Tanagro II	Salerno	18	10,300	Sept. '43	10,300	0	10,300	0

Exhibit No. 17 page 8 of 41 peges.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

TG STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep.cap.	11 Remarks
8,000	Oct.'43	0	0	0	8,000	1947	Hydro
53,000	Sept.'43	53,000	0	53,000	0	-	"
75,800	Sept.'43	75,800	0	75,800	0	-	"
9,900	June '44	0	0	0	9,900	1946	"
33,120	June '44	0	0	0	33,120	1947	"
22,000	June '44	0	0	0	22,000	1946	"
24,700	June '44	0	0	0	24,700	1946	"
1,800	Sept.'43	1,800	0	1,800	0	-	"
10,300	Sept.'43	10,300	0	10,300	0	-	"

(cont.) -2-

of 41 pages.
s to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY A
(Use name plate ratings expressed in KW for columns 4,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW
Tusciano	Salerno	18	9,700	Sept.'43	0	9,700 Nov.'43	9,700
Capuano	Naples	17	45,000	Oct. '43	0	15,000 Mar.'44 15,000 Jul.'44 15,000 Dec.'44	45,000
Totel S.M.E.			379,920		173,300		251,550

Exhibit No. 17 page 9 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

e	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
	18	9,700	Sept.'43	0	9,700 Nov.'43	9,700	0	-	Hydro
	17	45,000	Oct. '43	0	15,000 Mar.'44 15,000 Jul.'44 15,000 Dec.'44	45,000	0	-	Steem
		379,920		173,300		251,550	128,370		

of 41 pages.
efers to locetion on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

CENTRAL ITALY

Generating Capacity by Company

(Name plate ratings expressed in KW for columns 2, 3, 4 and 5)

1 Name of Company	2 Original Installed Capacity KW	3 Capacity Available on Liberation KW	4 Available Capacity on 31 Dec.945 KW	5 Unrepaired Capacity on 31 Dec.945 KW
Società Romana di Elettricità (S.R.E.)	204,980	48,960	89,840	115,140
Azienda Comunale Elettricità e Acque (A.C.E.A.)	68,000.	22,000	49,000	19,000
Società Terni	306,000	0	149,000	157,000
Unione Esercizi Elettrici (U.N.E.S.)	57,350	8,280	19,980	37,370
Società Larderello	139,000	0	20,100	118,900
Società Elettrica Valderno	160,520	24,000	56,920	103,600
Total CENTRAL ITALY	935,850	103,240	384,840	551,010

Declassified E.O. 12356 Section 3.3/NND No. 785019

CENTRAL ITALY

Generating Capacity by Company

te ratings expressed in KW for columns 2, 3, 4 and 5)

2 inal alled acity W	3 Capacity Available on Liberation KW	4 Available Capacity on 31 Dec.945 KW	5 Unrepaired Capacity on 31 Dec.945 KW	6 Remarks
204,980	48,960	89,840	115,140	See detail page 11
68,000.	22,000	49,000	19,000	" " " 14
306,000	0	149,000	157,000	" " " 15
57,350	8,280	19,980	37,370	" " " 17
139,000	0	20,100	118,900	" " " 19
160,520	24,000	56,920	103,600	" " " 21
935,850	103,240	384,840	551,010	

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARG
(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liber-ation, KW	7 Restored capacity month and year, KW	Available capacity on 31 Dec. 1945 KW	Unrepaired capacity on 31 Dec. 1945
SOCIETA' ROMANA DI ELETTRICITA' (S.R.E.)								
Ferfa I	Rieti	23	19,200	June '44	0	0	0	19,20
Ferfa II	Rome	23	8,960	" "	0	4,480 Nov.'44	4,480	4,48
Subiaco	Rome	23	7,760	" "	0	3,880 Jul.'44	3,880	3,88
Cepreno	Frosinone	17	15,440	" "	0	11,240 Sept.'44	11,240	4,20
Centerno	Frosinone	23	10,000	" "	0	10,000 Feb. '45	10,000	0
Ponte Fiume	Frosinone	17	9,800	" "	0	4,000 May '45	4,000	5,800

Exhibit No. 17 page 11 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
ame plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
A' (S.R.E.)								
23	19,200	June '44	0	0	0	19,200	1946	Hydro
23	8,960	" "	0	4,480 Nov. '44	4,480	4,480	1946	"
23	7,760	" "	0	3,880 Jul. '44	3,880	3,880	1946	"
17	15,440	" "	0	11,240 Sept. '44	11,240	4,200	-	"
23	10,000	" "	0	10,000 Feb. '45	10,000	0	*	"
17	9,800	" "	0	4,000 May '45	4,000	5,800	1946	"

ers to location on Exhibit No. 23 Volume II. (cont.) -1-

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KV INSTALLED CAPACITY AND
(Use name plate ratings expressed in KW for columns 4, 6,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity K.W.	5 Month and year of liberation by Allies	6 Capacity available on liberation. K.W.	7 Restored capacity month and year. K.W.	8 Available capacity on 31 Dec. 1945 K.W	Unrepaired
Fontana Liri	Frosinone	24	2,880	June 1944	0	0	0	
Fontecupa	Frosinone	24	4,800	" "	0	4,160 Aug. '45	4,160	
Vulci	Viterbo	22	3,520	" "	0	1,400 Jul. '44	1,400	2
Morino	Aquila	24	12,800	" "	0	0	0	12
Olvena	Grosseto	22	3,360	" "	0	1,680 Feb. '45	1,680	1
Acquoria	Rome	23	57,500	" "	0	4,000 Aug. '44 4,200 Dec. '44	8,200	49

Exhibit No. 17 page 12 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

e name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

nce	3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion, KW	7 Restored capacity Month and year, KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
none	24	2,880	June 1944	0	0	0	2,880	1947	Hydro
none	24	4,800	" "	0	4,160 Aug. '45	4,160	640	-	"
po	22	3,520	" "	0	1,400 Jul. '44	1,400	2,120	-	"
e	24	12,800	" "	0	0	0	12,800	1946	"
eto	22	3,360	" "	0	1,680 Feb. '45	1,680	1,680	-	"
	23	57,500	" "	0	4,000 Aug. '44 4,200 Dec. '44	8,200	49,300	1947	"

12 of 41 pages.
refers to location on Exhibit No. 23 Volume II.

(cont.) -2-

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 a

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW
Arci	Rome	23	8,320	June '44	8,320	0	4,160	4,160
Vesta	Rome	23	2,640	" "	2,640	0	2,640	0
Scalelle	Rome	23	8,000	" "	8,000	0	4,000	4,000
S. Paolo	Rome	23	30,000	" "	30,000	0	30,000	0
Total S.R.E.			204,980		48,960		89,840	115,140

Exhibit No. 17 page 13 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

...ERATING STATIONS - 2,000 KW INSTALLED CAPACITY AND LARGER

...ame plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated Year of completion of unrep. cap.	11 Remarks
23	8,320	June '44	8,320	0	4,160	4,160	-	One unit transferred to Fontecupa
								Hydro
23	2,640	" "	2,640	0	2,640	0	-	
23	8,000	" "	8,000	0	4,000	4,000	-	One unit taken to Acquoria
								Steam
23	30,000	" "	30,000	0	30,000	0	-	
	204,980		48,960		89,840	115,140		

...efers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 and

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	Estimated
AZIENDA COMUNALE ELETTRICITA E ACQUE (A.C.E.A.)									
Castel Madema	Rome	23	13,000	June '44	0	5,000 June '45	5,000	8,000	
Comunecque	Rome	23	10,000	June '44	10,000	0	10,000	0	
Mandela	Rome	23	6,000	June '44	0	3,000 Dec. '44	3,000	3,000	
Selisano	Rieti	23	16,000	June '44	0	8,000 Dec. '45	8,000	8,000	
Montemartini	Rome	23	23,000	June '44	12,000	11,000 June '44	23,000	0	
Total A.C.E.A.			68,000		22,000		49,000	19,000	

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

RATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
me plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
E ACQUE (A.C.E.A.)								
23	13,000	June '44	0	5,000 June '45	5,000	8,000	1947	Hydro
23	10,000	June '44	10,000	0	10,000	0	-	"
23	6,000	June '44	0	3,000 Dec.'44	3,000	3,000	1947	"
23	16,000	June '44	0	8,000 Dec.'45	8,000	8,000	1947	"
23	23,000	June '44	12,000	11,000 June '44	23,000	0	-	Steem & Diesel
	68,000		22,000		49,000	19,000		

of 41 peges.
ers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LAR
(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Hour and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945
SOCIETA' TERNI								
Cervara	Terni	23	9,000	June '44	0	1,500 July '44 3,000 Sept. '44 1,500 Oct. '44 750 Nov. '44 2,250 Dec. '44	9,000	0
Galleto	Terni	23	140,000	June '44	0	35,000 - Jan. '45 35,000 Apr. '45 35,000 Aug. '45 35,000 Dec. '45	140,000	0

(o) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2,000 KW INSTALLED CAPACITY AND LARGER

e name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

ce	3 (c) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrec.cap.	11 Remarks
	23	9,000	June '44	0	1,500 July '44 3,000 Sept.'44 1,500 Oct. '44 750 Nov. '44 2,250 Dec. '44	9,000	0	-	Hydro
	23	140,000	June '44	0	35,000 Jan. '45 35,000 Apr. '45 35,000 Aug. '45 35,000 Dec. '45	140,000	0	-	Hydro

5 of 41 pages.

refers to location on Exhibit No. 23 Volume II.

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
(Use name plate ratings expressed in KW for columns 4, 5, 7, 8 an

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation KW	7 Restored capacity Month and year KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW
Collestatte	Terni	23	9,000	June '44	0	0	0	9,000
Cotilia	Terni	23	55,000	June '44	0	0	0	55,000
Marmore	Terni	23	18,000	June '44	0	0	0	18,000
Pepigno	Terni	23	66,000	June '44	0	0	0	66,000
Preci	Terni	29	9,000	June '44	0	0	0	9,000
Total TERNI			306,000		0		149,000	157,000

Exhibit No. 17 page 16 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ELTIG STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

me plate ratings expressed in KW for columns 4, 5, 7, 8 and 9)

3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation, KW	7 Restored capacity Month and year, KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
23	9,000	June '44	0	0	0	9,000	-	Hydro
23	55,000	June '44	0	0	0	55,000	1946	Hydro
23	18,000	June '44	0	0	0	18,000	-	Hydro
23	66,000	June '44	0	0	0	66,000	1947	Hydro
29	9,000	June '44	0	0	0	9,000	1946	Hydro
	306,000		0		149,000	157,000		

of 41 pages.
fers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND

(Use name plate ratings expressed in KW for columns 4, 6

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation, KW	7 Restored capacity Month and Year, KW	8 Available capacity on 31 Dec. 1945 KW	
UNIONE ESERCIZI ELETTRICI (U.N.E.S.)								
Bolognola	Macerate	29	2,930	June '44	2,930	0	2,930	
Castellano	Ascoli Piceno	30	6,300	June '44	0	0	0	6
Furlo	Pesaro	29	3,200	July '44	0	0	0	3
Gerosa	Ascoli Piceno	30	16,000	June '44	0	8,000 Sept. '45	8,000	8
Mozzano	Ascoli Piceno	30	2,900	June '44	0	0	0	2
Pedaso	Ascoli Piceno	30	5,350	June '44	5,350	0	5,350	

Exhibit No. 17 page 17 of 41 - pages.

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

e name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

ce	3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
(U.N.E.S.)									
te	29	2,930	June '44	2,930	0	2,930	0	- .	Hydro
	30	6,300	June '44	0	0	0	6,300	1947	"
	29	3,200	July '44	0	0	0	3,200	1950	"
	30	16,000	June '44	0	8,000 Sept. '45	8,000	8,000	-	"
	30	2,900	June '44	0	0	0	2,900	1947	"
	30	5,350	June '44	5,350	0	5,350	0	-	"

17 of 41 - pages.
refers to location on Exhibit No. 23 Volume II.

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LA
(Use name plate ratings expressed in KW for columns 4, 6, 7

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion, KW	7 Restored capacity Month and year, KW	8 Available capacity on 31 Dec. 1945 KW	Increased capacity on
Pettorano	Aquila	24	3,970	June '44	0	500 Dec. '44	500	3
Venemartello	Ascoli Piceno	30	16,700	June '44	0	3,200 Nov. '45	3,200	13
Total U.N.E.S.			57,350		8,280		19,980	37

Exhibit No. 17 page 18 of 41 pages.
(o) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ELECTRICITY STATIONS - 2,000 KW INSTALLED CAPACITY AND LARGER

e name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

ce	3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion, KW	7 Restored capacity Month and year, KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrec.cap.	11 Remarks
	24	3,970	June '44	0	500 Dec. '44	500	3,470	1946	Hydro
	30	16,700	June '44	0	3,200 Nov. '45	3,200	13,500	1947	"
		57,350		8,280		19,980	37,370		

refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND L
(Use name plate ratings expressed in KW for columns 4, 6,

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW
SOCIETA' LARDERELLO							
Castelnuovo dei Soffioni	Pisa	27	48,000	June '44	0	12,000 Mar.'45	12,000
						3,000 Aug.'44	
						900 Sept.'44	4,600
Larderello I	Pisa	27	6,000	June '44	0	700 May '45	
						0	0
Larderello II	Pisa	27	72,000	June '44	0	0	0
Monterotondo	Grosseto	27	3,500	June '44	0	3,500 Dec.'45	3,50
Sasso	Pisa	27	3,500	June '44	0		

Exhibit No. 17 page 19 of 41 pages. Volume II
(o) Reference No. Column 3 refers to location on Exhibit No. 23

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

ame plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and Year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
27	48,000	June '44	0	12,000 Mar.'45	12,000	36,000	1946	Natural Steam
27	6,000	June '44	0	3,000 Aug.'44 900 Sept.'44 700 May '45	4,600	1,400	-	" "
27	72,000	June '44	0	0	0	72,000	1947	" "
27	3,500	June '44	0	0	0	3,500	1946	" "
27	3,500	June '44	0	3,500 Dec.'45	3,500	0	-	" "

of 41 pages. (cont.)

efers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LAR

(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion, KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945
Sevrazzano	Pisa	27	6,000	June '44	0	0	0	6,00
Totel LARDERELLO			139,000		0		20,100	118,9

Exhibit No. 17 page 20 of 41 pages.

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

ce	3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and Year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
	27	6,000	June '44	0	0	0	6,000	1946	Natural Steam
		139,000		0		20,100	118,900		

20 of 41 pages.
refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 and

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	Estimated
SOCIETA' ELETTRICA VALDARNO (SELT VALDARNO)									
Nera Montoro	Terni	23	22,000	June '44	22,000	0	22,000	0	
Gallicano	Lucca	34	22,000	Sept.'44	0	4,800 Nov.'45	4,800	17,200	1
Castelnuovo Garfagnana	Lucca	34	7,200	Oct. '44	0	0	0	7,200	1
Giardinetto (Lima)	Lucca	34	6,000	Sept.'44	0	2,800 Dec.'45	2,800	3,200	1
Corfino	Lucca	34	5,320	Sept.'44	2,000	3,320 Sept.'45	5,320	0	
Pian della Rocca	Lucca	34	22,000	Sept.'44	0	22,000 June '45	22,000	0	

Exhibit No. 17 page 21 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
(SELT	VALDARNO)							
23	22,000	June '44	22,000	0	22,000	0	-	Hydro
34	22,000	Sept.'44	0	4,800 Nov.'45	4,800	17,200	1947	"
34	7,200	Oct. '44	0	0	0	7,200	1946	"
34	6,000	Sept.'44	0	2,800 Dec.'45	2,800	3,200	1946	"
34	5,320	Sept.'44	2,000	3,320 Sept.'45	5,320	0	-	"
34	22,000	Sept.'44	0	22,000 June '45	22,000	0	-	"

efers to location on Exhibit No. 23 Volume II.

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 and

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW
Sperando	Pistoia	34	14,000	Sept.'44	0	0	0	14,000
Castelnuovo Sabbioni	Florence	26	20,000	Sept.'44	0	0	0	20,000
Livorno	Livorno	27	42,000	Sept.'44	0	0	0	42,000
Total VALDARNO			160,520		24,000		56,920	103,600

(o) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

NG STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

late ratings expressed in KW for columns 4, 6, 7, 8 and 9)

4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
14,000	Sept.'44	0	0	0	14,000	1947	Hydro
20,000	Sept.'44	0	0	0	20,000	-	Steam
42,000	Sept.'44	0	0	0	42,000	-	Steam
160,520		24,000		56,920	103,600		

41 peges.

o location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

NORTHERN ITALY

Generating Capacity by Company

(Name plate ratings expressed in KW for columns 2, 3, 4 and

1 Name of Company	2 Original Installed Capacity KW	3 Capacity Available on Liberation KW	4 Available Capacity on 31 Dec. 945 KW	5 Unrepaire Capacity on 31 De KW
Società Edison	1,955,000	1,758,400	1,848,000	107,0
Società Idroelettrica Piemonte (S.I.P.)	749,700	665,650	749,700	0
Società Adriatica di Elettricità (S.A.D.E.)	490,000	398,000	446,000	44,0
Azienda Elettrica Municipale Milano (A.E.M.)	152,000	152,000	152,000	0
Azienda Elettrica Municipale Torino (A.E.M.)	128,400	104,900	128,400	0
Società Montecatini	146,300	141,700	146,300	0
Acciaierie e Ferriere Lombarde Falck	234,000	223,000	228,500	5,5
Società Anonima Nazionale Cogne	79,800	79,800	79,800	0

Declassified E.O. 12356 Section 3.3/NND No. 785019

NORTHERN ITALY

Generating Capacity by Company

plate ratings expressed in KW for columns 2, 3, 4 and 5)

2 Original Installed Capacity KW	3 Capacity Available on Liberation KW	4 Available Capacity on 31 Dec.945 KW	5 Unrepaired Capacity on 31 Dec.945 KW	6 Remarks
1,955,000	1,758,400	1,848,000	107,000	See detail page 25
749,700	665,650	749,700	0	" " " 27
490,000	398,000	446,000	44,000	" " " 28
152,000	152,000	152,000	0	" " " 30
128,400	104,900	128,400	0	" " " 31
146,300	141,700	146,300	0	" " " 32
234,000	223,000	228,500	5,500	" " " 33
79,800	79,800	79,800	0	" " " 35

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

NORTHERN ITALY

Generating Capacity by Company

(Name plate ratings expressed in KW for columns 2, 3, 4 and 5)

1 Name of Company	2 Original Installed Capacity KW	3 Capacity Available on Liberation KW	4 Available Capacity on 31 Dec.945 KW	5 Unrepaired Capacity, on 31 Dec.94 KW
Società Idroelettrica del Cismon	60,000	60,000	60,000	0
Società Idroelettrica Medio Adige (S.I.M.A.)	75,000	0	25,000	50,000
Aziende Consorziale Bolzano e Merano	35,000	35,000	35,000	0
Società Industriale Trentina (S.I.T.)	61,350	61,350	61,350	0
Società Anonima Elettricità Ponale	62,000	62,000	62,000	0
Total NORTHERN ITALY	4,228,550	3,741,800	4,022,150	206,500

Declassified E.O. 12356 Section 3.3/NND No. 785019

NORTHERN ITALY

Generating Capacity by Company

plate ratings expressed in KW for columns 2, 3, 4 and 5)

2 Original Installed Capacity KW	3 Capacity Available on Liberation KW	4 Available Capacity on 31 Dec.945 KW	5 Unrepaired Capacity on 31 Dec.945 KW	6 Remarks
60,000	60,000	60,000	0	See detail pege 36
75,000	0	25,000	50,000	" " " 37
35,000	35,000	35,000	0	" " " 38
61,350	61,350	61,350	0	" " " 39
62,000	62,000	62,000	0	" " " 40
4,228,550	3,741,800	4,022,150	206,500	

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LAR
(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	Available capacity on 31 Dec. 1945 KW	Unrepaired capacity on
SOCIETA' EDISON								
Airole	Imperia	31	10,800	April'45	0	0	0	10
Bevera	Imperia	31	4,800	" "	0	0	0	4
Ceretti	Novara	39	16,200	" "	10,600	5,600 Dec.'45	16,200	
Cividate	Brescia	41	52,500	" "	35,000	0	35,000	17
Concenter	Genova	53	50,000	" "	0	0	0	50
Ligonchio	Reggio	34	16,450	" "	9,450	0	9,450	
Mazzunno	Brescia	41	4,500	" "	0	2,250 July'45	2,250	
Muschioso	Modena	34	7,300	" "	0	0	0	

Exhibit No. 17 page 25 of 41 pages.
(o) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

se name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

nce	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
ria	31	10,800	April'45	0	0	0	10,800	1947	Hydro
ria	31	4,800	" "	0	0	0	4,800	1947	"
ra	39	16,200	" "	10,600	5,600 Dec.'45	16,200	0	-	"
cia	41	52,500	" "	35,000	0	35,000	17,500	1946	"
va	53	50,000	" "	0	0	0	50,000	1946	Steam
io	34	16,450	" "	9,450	0	9,450	7,000	1946	Hydro
cia	41	4,500	" "	0	2,250 July'45	2,250	2,250	1947	"
na	34	7,300	" "	0	0	0	7,300	1947	"

3 refers to location on Exhibit No. 23 Volume II.

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND L

(Use name plate ratings expressed in KW for columns 4, 6, 7

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion, KW	7 Restored capacity Month and year, KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired
Selarno	Brescia	41	4,500	April'45	1,500	1,500 Sept.'45	3,000	1
S.Michele	Modena	34	3,200	" "	0	300 Aug.'45	300	2
Sonico	Brescia	41	60,000	" "	30,000	30,000 Aug.'45	60,000	
(O)rettere	Modena	34	5,900	" "	0	2,950 Oct.'45	2,950	
Temù	Brescia	47	47,000	" "	0	47,000 Oct.'45	47,000	
Undamaged generating stations			1,671,850	" "	1,671,850	-	1,671,850	
Total EDISON			1,955,000		1,758,400		1,848,000	

Exhibit No. 17 page 26 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
ame plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
41	4,500	April'45	1,500	1,500 Sept.'45	3,000	1,500	1946	Hydro
34	3,200	" "	0	300 Aug.'45	300	2,900	1946	"
41	60,000	" "	30,000	30,000 Aug.'45	60,000	0	-	"
34	5,900	" "	0	2,950 Oct.'45	2,950	2,950	1946	"
47	47,000	" "	0	47,000 Oct.'45	47,000	0	-	"
	1,671,850	" "	1,671,850	-	1,671,850	-	-	Hydro and Steam
	1,955,000		1,758,400		1,848,000	107,000		

of 41 pages.
fers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGE
(Use name plate ratings expressed in KW for columns 4, 6, 7, 8

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and Year. KW	Available capacity on 8 31 Dec. 1945 KW	Unrepaired capacity on 9 1945
SOCIETA' IDROELETTRICA PIEMONTE (S.I.P.)								
Berd	Aoste	39	3,250	May '45	0	3,250 May '45	3,250	
Cardeno	Bolzeno	48	199,000	" "	166,000	33,000 Aug.'45	199,000	
Castiglion Dora	Aoste	39	25,800	" "	0	25,800 Sept.'45	25,800	
Venalzio	Torino	38	48,500	" "	32,400	16,100 Oct.'45	48,500	
Viù	Torino	38	5,900	" "	0	5,900 June '45	5,900	
Undemaged generating stations			467,250		467,250	-	467,250	
Total S.I.P.			749,700		665,650		749,700	

(o) Reference No. Column 3 refers to location on Exhibit No. 23

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
ONTE (S.I.P.)									
	39	3,250	May '45	0	3,250 May '45	3,250	0	-	Hydro
	48	199,000	" "	166,000	33,000 Aug.'45	199,000	0	-	"
	39	25,800	" "	0	25,800 Sept.'45	25,800	0	-	"
	38	48,500	" "	32,400	16,100 Oct.'45	48,500	0	-	"
	38	5,900	" "	0	5,900 June '45	5,900	0	-	"
		467,250		467,250	-	467,250	-	-	Hydro and Steam
		749,700		665,650		749,700	0		

of 41 pages.
refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND L
(Use name plate ratings expressed in KW for columns 4, 6,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired
SOCIETA' ADRIATICA DI ELETTRICITA (S.A.D.E.)								
Battiferro	Bologna	35	3,000	April'45	0	0	0	3
Le Piane	Bologna	35	10,000	Oct.'44	0	0	0	10
Marghera	Venezia	42	55,800	April'45	0	30,800 Dec.'45	30,800	25
Pieva	Gorizia	44	15,000	May '45	0	15,000 Nov.'45	15,000	0
Savorgnano	Udine	43	2,200	April'45	0	2,200 July '45	2,200	0
Santa Maria	Bologna	35	6,000	Oct.'44	0	0	0	6

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ARING STATIONS - 2,000 KW INSTALLED CAPACITY AND LARGER

e plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 Year Const.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated Year of completion of unrep. cap.	11 Remarks
ITA (S.A.D.E.)								
35	3,000	April'45	0	0	0	3,000	1946	Diesel
35	10,000	Oct.'44	0	0	0	10,000	1946	Hydro
42	55,800	April'45	0	30,800 Dec.'45	30,800	25,000	1946	Steem
44	15,000	May '45	0	15,000 Nov.'45	15,000	0	-	Hydro
43	2,200	April'45	0	2,200 July '45	2,200	0	-	Hydro
35	6,000	Oct.'44	0	0	0	6,000	1949	Hydro

ers to location on Exhibit No. 23 Volume II. (cont.),

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND

(Use name plate ratings expressed in KW for columns 4, 6

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	Available capacity on 31 Dec. 1945 KW	
Undamaged generating Stations			398,000	Oct.44 to April 1945	398,000	-	398,000	
Total Adriatica			490,000		398,000		446,000	4

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

...ETIC STATIONS - 2,000 KW INSTALLED CAPACITY AND LARGER

...e plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 ...o. ...eh.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
	398,000	Oct.44 to April 1945	398,000	-	398,000	-	-	Hydro and Steem
	490,000		398,000		446,000	44,000		

...of 41 pages.

...ers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LAR

(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on
AZIENDA ELETTRICA MUNICIPALE MILANO (A.E.M.)								
Isolaccia (Freele)	Sondrio	47	45,000	May '45	45,000	0	45,000	0
Grosotto	Sondrio	47	36,000	May '45	36,000	0	36,000	0
Roasco	Sondrio	47	26,000	May '45	26,000	0	26,000	0
Stazzona	Sondrio	41	35,000	May '45	35,000	0	35,000	0
Ponto	Milano	40	10,000	May '45	10,000	0	10,000	0
Total A.E.M.			152,000		152,000		152,000	0

Exhibit No. 17 page 30 of 41 pages.
(o) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II

Declassified E.O. 12356 Section 3.3/NND No. 785019

RATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

me plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
ILANO (A.E.M.)								
47	45,000	May '45	45,000	0	45,000	0	-	Hydro
47	36,000	May '45	36,000	0	36,000	0	-	"
47	26,000	May '45	26,000	0	26,000	0	-	"
41	35,000	May '45	35,000	0	35,000	0	-	"
40	10,000	May '45	10,000	0	10,000	0	-	Steam
	152,000		152,000		152,000	0		

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LA
(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on
AZIENDA ELETTRICA MUNICIPALE - TORINO (A.E.M.)								
Bardonetto	Torino	38	14,000	April'45	14,000	0	14,000	0
Chiomonte	Torino	38	18,000	April'45	18,000	0	18,000	0
Pont	Torino	39	15,000	April'45	15,000	0	15,000	0
Rosone	Torino	38	54,000	April'45	40,500	13,500 Oct.'45	54,000	0
Susa	Torino	38	11,200	April'45	11,200	0	11,200	0
Martinetto	Torino	39	16,200	April'45	6,200	10,000 Dec.'45	16,200	0
Total A.E.M. Torino			128,400		104,900		128,400	0

Exhibit No. 17 page 31 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II

Declassified E.O. 12356 Section 3.3/NND No. 785019

ATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

e plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (e) e No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
TORINO (A.E.M.)								
8	14,000	April'45	14,000	0	14,000	0	-	Hydro
8	18,000	April'45	18,000	0	18,000	0	-	"
9	15,000	April'45	15,000	0	15,000	0	-	"
8	54,000	April'45	40,500	13,500 Oct.'45	54,000	0	-	"
8	11,200	April'45	11,200	0	11,200	0	-	"
9	16,200	April'45	6,200	10,000 Dec.'45	16,200	0	-	Steem
	128,400		104,900		128,400	0		

of 41 pages.

es to location on Exhibit No. 23 Volume II

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY

(Use name plate ratings expressed in kw for columns 4,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity kw	5 Month and year of liberation by Allies	6 Capacity available on liberation, kw	7 Restored capacity - month and year, kw	8 Available capacity on 31 Dec. 1945 kw	
SOCIETA' MONTECATINI								
Ponte Gardena	Bolzano	48	45,000	May '45	45,000	0	45,000	
Tel	Bolzano	48	8,400	" "	8,400	0	8,400	
Marlengo	Bolzano	48	32,600	" "	32,600	0	32,600	
Premessa	Novara	39	6,500	" "	6,500	0	6,500	
Battiggio	Novara	39	13,000	" "	13,000	0	13,000	
Farigliano	Savona	32	4,600	" "	0	4,600 Dec. '45	4,600	
S.Giuseppe di Ceiro			36,200		36,200	0	36,200	0
Total MONTECATINI			146,300		141,700		146,300	0

Exhibit No. 17 page 32 of 41 pages.

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

...ERATING STATIONS - 2,000 KW INSTALLED CAPACITY AND LARGER
...ame plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep.cap.	11 Remarks
48	45,000	May '45	45,000	0	45,000	0	-	Hydro
48	8,400	" "	8,400	0	8,400	0	-	"
48	32,600	" "	32,600	0	32,600	0	-	"
48	6,500	" "	6,500	0	6,500	0	-	"
39	13,000	" "	13,000	0	13,000	0	-	"
39	4,600	" "	0	4,600 Dec.'45	4,600	0	-	"
32	36,200	" "	36,200	0	36,200	0	-	Steam
	146,300		141,700		146,300	0		

...of 41 pages.
...fers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND L
(Use name plate ratings expressed in KW for columns 4, 6,

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired
ACCIAIERIE E FERRIERE LOMBARDE FALEK								
Boffetto	Sondrio	41	10,500	April'45	10,500	0	10,500	
Venina	Sondrio	41	58,500	April'45	58,500	0	58,500	
Armisa	Sondrio	41	10,000	April'45	10,000	0	10,000	
Vedello	Sondrio	41	31,500	April'45	31,500	0	31,500	
Zappello	Sondrio	41	11,000	April'45	5,500	0	5,500	5,
Teglia	Apuania	33	27,500	April'45	22,000	5,500 Dec.'45	27,500	
Rocchetta	Apuania	33	4,000	April'45	4,000	0	4,000	
Spigno Monferrato	Alessandria	32	24,000	April'45	24,000	0	24,000	

(o) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

se name plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

	3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
MBARRE FALEK									
rio	41	10,500	April'45	10,500	0	10,500	0	-	Hydro
rio	41	58,500	April'45	58,500	0	58,500	0	-	"
rio	41	10,000	April'45	10,000	0	10,000	0	-	"
rio	41	31,500	April'45	31,500	0	31,500	0	-	"
rio	41	11,000	April'45	5,500	0	5,500	5,500	1946	"
nie	33	27,500	April'45	22,000	5,500 Dec.'45	27,500	0	-	"
nie	33	4,000	April'45	4,000	0	4,000	0	-	"
sendrie	32	24,000	April'45	24,000	0	24,000	0	-	"

R refers to location on Exhibit No. 23 Volume II.

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2,000 KW INSTALLED CAPACITY AND LA
(Use name plate ratings expressed in KW for columns 4, 6, 7

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired
Cairo Montenotte	Savona	32	8,600	April'45	8,600	0	8,600	
Campo	Sondrio	46	38,400	April'45	38,400	0	38,400	
Sesto S.Giovanni	Milano	40	10,000	April'45	10,000	0	10,000	
Total FALCK			234,000		223,000		228,500	5,

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ETING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

me plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
								Hydro
32	8,600	April'45	8,600	0	8,600	0	- - -	"
46	38,400	April'45	38,400	0	38,400	0	- - -	"
40	10,000	April'45	10,000	0	10,000	0	- - -	
	234,000		223,000		228,500	5,500		

of 41 pages.

refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND

(Use name plate ratings expressed in KW for columns 4, 6,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired
SOCIETA' ANONIMA NAZIONALE COGNE								
Aymavilles	Aosta	38	8,400	April'45	8,400	0	8,400	
Chavonne	Aosta	38	29,400	April'45	29,400	0	29,400	
Champagne I	Aosta	38	12,600	April'45	12,600	0	12,600	
Champagne II	Aosta	38	29,400	April'45	29,400	0	29,400	
Total COGNE			79,800		79,800		79,800	

Exhibit No. 17 page 35 of 41 pages.

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unren. cap.	11 Remarks
8	8,400	April'45	8,400	0	8,400	0	-	Hydro
8	29,400	April'45	29,400	0	29,400	0	1946	"
8	12,600	April'45	12,600	0	12,600	0	-	"
8	29,400	April'45	29,400	0	29,400	0	-	
	79,800		79,800		79,800	0		

of 41 pages.
s to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
(Use name plate ratings expressed in KW for columns 4, 6, 7, 8 &

1 Name of Plant	2 Province	3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW
SOCIETA' IDROELETTRICA DEL CISMON								
S. Silvestro	Trento	42	30,000	May '45	30,000	0	30,000	0
Moline	Belluno	42	30,000	May '45	30,000	0	30,000	0
Total CISMON			60,000		60,000		60,000	0

Exhibit No. 17 page 36 of 41 pages.
(o) Reference No. Column 3 refers to location on Exhibit No. 13 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

TING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

e plate retings expressed in KW for columns 4, 6, 7, 8 and 9)

3) ef. o.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
ON								
2	30,000	May '45	30,000	0	30,000	0	-	Hydro
2	30,000	May '45	30,000	0	30,000	0	-	Hydro
	60,000		60,000		60,000	0		

of 41 pages.
ers to location on Exhibit No. 13 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARG
(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945
SOCIETA' IDROELETTRICA MEDIO ADIGE (S.I.M.A.)								
Chiewo	Verona	41	30,000	May '45	0	10,000 Dec. '45	10,000	20,0
Cussolengo	Verona	41	45,000	May '45	0	15,000 Dec. '45	15,000	30,0
Total S.I.M.A.			75,000		0		25,000	50,0

(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

...TING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
...e plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 ...o) ...e. ...o.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion, KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
...DIGE (S.I.M.A.)								
...1	30,000	May '45	0	10,000 Dec. '45	10,000	20,000	1946	Hydro
...41	45,000	May '45	0	15,000 Dec. '45	15,000	30,000	1946	"
	75,000		0		25,000	50,000		

...of 41 pages.
...ers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LA
(Use name plate ratings expressed in KW for columns 4, 6, 7

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion, KW	7 Restored capacity Month and Year, KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on
AZIENDA ELETTRICA CONSORZIALE BOLZANO E MERANO								
Tel	Bolzano	48	20,000	May '45	20,000	0	20,000	0
Senales	Bolzano	47	12,000	May '45	12,000	0	12,000	0
Cardano	Bolzano	48	3,000	May '45	3,000	0	3,000	0
Total BOLZANO			35,000		35,000		35,000	

Exhibit No. 17 page 38 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER
ame plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (o) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
BOLZANO E MERANO								
48	20,000	May '45	20,000	0	20,000	0	-	Hydro
47	12,000	May '45	12,000	0	12,000	0	-	"
48	3,000	May '45	3,000	0	3,000	0	-	"
	35,000		35,000		35,000			

of 41 pages.
ers to location on Exhibit No. 13 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND L

(Use name plate ratings expressed in KW for columns 4, 6,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	Unrepaired
SOCIETA' INDUSTRIALE TRENTINA (S.I.T.)								
Dro	Trento	41	17,100	May '45	17,100	0	17,100	
Fies	Trento	41	22,350	May '45	22,350	0	22,350	
Carzano	Trento	42	10,800	May '45	10,800	0	10,800	
Grigno	Trento	48	6,700	May '45	6,700	0	6,700	
Costa Brunella	Trento	48	4,400	May '45	4,400	0	4,400	
Total S.I.T.			61,350		61,350		61,350	

Exhibit No. 17 page 39 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

ERATING STATIONS - 2,000 KW INSTALLED CAPACITY AND LARGER

ame plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation, KW	7 Restored capacity Month and year, KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep.cap.	11 Remarks
A (S.I.T.)								
41	17,100	May '45	17,100	0	17,100	0	-	Hydro
41	22,350	May '45	22,350	0	22,350	0	-	"
42	10,800	May '45	10,800	0	10,800	0	-	"
48	6,700	May '45	6,700	0	6,700	0	-	"
48	4,400	May '45	4,400	0	4,400	0	-	"
	61,350		61,350		61,350	0		

9 of 41 pages.
refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARG
(Use name plate ratings expressed in KW for columns 4, 6, 7,

1 Name of Plant	2 Province	3 (°) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec 1945
SOCIETA' ANONIMA ELETTRICITA' PONALE								
Riva	Trento	41	62,000	May '45	62,000	0	62,000	0

Exhibit No. 17 page 40 of 41 pages.
(°) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

...TING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

...e plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 ...e) ...o.	4 Original installed capacity KW	5 Month and Year of liberation by Allies	6 Capacity available on liberation. KW	7 Restored capacity Month and Year. KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated Year of completion of unrep. cap.	11 Remarks
PONALE								
41	62,000	May '45	62,000	0	62,000	0	-	Hydro

...of 41 pages.
...rs to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

GENERATING STATIONS - 2.000 KW INSTALLED CAPACITY A

(Use name plate ratings expressed in KW for columns 4,

1 Name of Plant	2 Province	3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on libera-tion KW	7 Restored capacity Month and year KW	8 Available capacity on 31 Dec. 1945 KW
FERROVIE DELLO STATO (STATE RAILWAYS)							
Bardonecchia	Torino	38	20,000	April'45	9,000	2,000 May '45	11,000
Bressanone	Bolzano	48	120,000	April'45	120,000	0	120,000
Morbegno	Sondrio	40	9,000	April'45	3,000	0	3,000
Pavana	Firenze	34	12,000	March'45	0	0	0
Rio Vellea	Bolzano	48	6,500	April'45	6,500	0	6,500
Anversa (Sagittario)	Aquila	24	30,000	June '44	0	0	0
Suviana	Bologna	34	45,000	March'45	0	0	0
Total STATE RAILWAYS			242,500		138,500		140,500

(a) Reference No. Column 3 refers to location on Exhibit No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

RATING STATIONS - 2.000 KW INSTALLED CAPACITY AND LARGER

me plate ratings expressed in KW for columns 4, 6, 7, 8 and 9)

3 (a) Ref. No.	4 Original installed capacity KW	5 Month and year of liberation by Allies	6 Capacity available on liberation, KW	7 Restored capacity Month and year, KW	8 Available capacity on 31 Dec. 1945 KW	9 Unrepaired capacity on 31 Dec. 1945 KW	10 Estimated year of completion of unrep. cap.	11 Remarks
ILWAYS)								
38	20,000	April'45	9,000	2,000 May '45	11,000	9,000	1946	Hydro
				0	120,000	0	-	"
48	120,000	April'45	120,000	0	3,000	6,000	1946	"
40	9,000	April'45	3,000	0	0	12,000	1948	"
34	12,000	March'45	0	0	6,500	0	-	"
48	6,500	April'45	6,500	0	0	30,000	1947	"
24	30,000	June '44	0	0	0	45,000	1948	"
34	45,000	March'45	0	0				
	242,500		138,500		140,500	102,000		

of 41 pages.
efers to location on Exhibit, No. 23 Volume II.

Declassified E.O. 12356 Section 3.3/NND No. 785019

I T A L Y

Installed capacity of substations by Area

(Name plate ratings expressed in MVA for columns 2, 3, 4 an

1 AREA	2 Original installed capacity		3 Capacity available on liberation		4 Capacity available on 31 Dec.1945		Unrep ty on
	MVA	%	MVA	%	MVA	%	M
Sardinia	87	100	66	76	75	86	
Sicily	113	100	95	84	103	91	
Southern Italy	1,304	100	690	53	854	65	
Central Italy	2,753	100	549	20	1,245	45	
Northern Italy	11,897	100	10,477	88	11,236	95	
Total	16,154	100	11,877	74	13,513	84	2
State Railways	1,057	100	346	33	377	36	
TOTAL ITALY	17,211	100	12,223	71	13,890	81	3

Declassified E.O. 12356 Section 3.3/NND No. 785019

I T A L Y

Installed capacity of substations by Area

eme plate ratings expressed in MVA for columns 2, 3, 4 and 5.)

2 al installed apacity		3 Capacity available on liberation		4 Capacity available on 31 Dec.1945		5 Unrepaired capacity on 31 Dec.1945		6 Remarks
VA	%	MVA	%	MVA	%	MVA	%	
87	100	66	76	75	86	12	14	See detail page 2
113	100	95	84	103	91	10	9	" " " 3
,304	100	690	53	854	65	450	35	" " " 4
2,753	100	549	20	1,245	45	1,508	55	" " " 5
,897	100	10,477	88	11,236	95	661	5	" " " 7
6,154	100	11,877	74	13,513	84	2,641	16	
,057	100	346	33	377	36	680	64	See detail page 10
7,211	100	12,223	71	13,890	81	3,321	19	

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER
(name plate rating expressed in MVA (thousands of KVA

NOTE : The above heading appears at the top of all the following pages, pertain

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER
(name plate rating expressed in MVA (thousands of KVA)

appears at the top of all the following pages, pertaining to exhibit n°18

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(Power figures expressed in thousands of KVA per columns

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA		
	Large	Small	Total		Large	Small	Total	Large	Small	Total
SARDINIA										
Società Elettrica Sarda (S.E.S.)	0	87	87	Sept.43	0	66	66	0	75	75

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(Capacities expressed in thousands of KVA for columns 3,4,5 and 6)

2 Installed capacity MVA		3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			6 Unrepaired capacity on 31 Dec.1945 MVA			7 Remarks
	Total		Large	Small	Total	Large	Small	Total	Large	Small	Total	
7	87	Sept.43	0	66	66	0	75	75	0	12	12	Large substations are those with an installed capacity of 30,000 KVA and higher Small substations are those with an installed capacity less than 30,000 KVA.

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS OF MV PRIMARY VOLTAGE AND HIGHER

(All capacities expressed in thousands of MVA [illegible] columns)

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA		
	Large	Small	Total		Large	Small	Total	Large	Small	Total
SICILY										
Società Generale Elettrica della Sicilia (S.G.E.S.)	0	113	113	July to Aug. 943	0	95	95	0	103	103

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(Table entries expressed in thousands of KVA for columns 2,4,5 and 6)

2		3	4			5			6			7
Installed capacity MVA		Month & year of liberation by Allies	Capacity available on liberation MVA			Capacity available on 31 Dec. 1945 MVA			Unrepaired capacity on 31 Dec. 1945 MVA			Remarks
Small	Total		Large	Small	Total	Large	Small	Total	Large	Small	Total	
13	113	July to Aug. 943	0	95	95	0	103	103	0	10	10	Large substations are those with an installed capacity of 30,000 KVA and higher Small substations are those with an installed capacity less than 30,000 KVA.

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(In each case entries expressed in thousands of KVA. See columns

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA		
	Large	Small	Total		Large	Small	Total	Large	Small	Total
SOUTHERN ITALY										
Società Meridionale di Elettricità (S.M.E.)	1,049	206	1,255	Sept.943 to June 944	511	155	666	685	145	830
Ente Autonomo Volturno (E.A.V.)	0	49	49	Oct.943 to Dec.943	0	24	24	0	24	24
Total SOUTHERN ITALY	1,049	255	1,304		511	179	690	685	169	854

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(All figures expressed in thousands of KVA (see columns 2,4,5 and 6).

2 Installed capacity		3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			6 Unrepaired capacity on 31 Dec.1945 MVA			7 Remarks
	Total		Large	Small	Total	Large	Small	Total	Large	Small	Total	
6	1,255	Sept.943 to June 944	511	155	666	685	145	830	364	61	425	Large substations are those with an installed capacity of 30,000 KVA and higher
9	49	Oct.943 to Dec.943	0	24	24	0	24	24	0	25	25	Small substations are those with an installed capacity less than 30,000 KVA.
55	1,304		511	179	690	685	169	854	364	86	450	

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(... more fully explained in ... see columns 3, 4, 5)

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			Unr ty
	Large	Small	Total		Large	Small	Total	Large	Small	Total	Large
CENTRAL ITALY											
Società Romana di Elettricità (S.R.E.)	337	204	541	June '44	142	94	236	225	141	366	11
Azienda Comunale Elettricità Acque (A.C.E.A.)	70	155	225	June '44	70	100	170	70	121	191	
Società Terni	486	62	548	June '44	0	4	4	128	17	145	3
Unione Esercizi Elettrici (U.N.E.S.)	0	358	358	June - July 944	0	77	77	0	169	169	

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(Items enumerated in accordance with columns 1,4,5 and 6)

1	2	3	4			5			6			7
ed		Month & year of liberation by Allies	Capacity available on liberation MVA			Capacity available on 31 Dec. 1945 MVA			Unrepaired capacity on 31 Dec. 1945 MVA			Remarks
			Large	Small	Total	Large	Small	Total	Large	Small	Total	
41		June '44	142	94	236	225	141	366	112	63	175	Large substations are those with an installed capacity of 30,000 KVA and higher
25		June '44	70	100	170	70	121	191	0	34	34	Small substations are those with an installed capacity less than 30,000 KVA
48		June '44	0	4	4	128	17	145	358	45	403	
58		June - July 944	0	77	77	0	169	169	0	189	189	

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(Power data and ratings expressed in thousands of KVA for columns

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA		
	Large	Small	Total		Large	Small	Total	Large	Small	Total
Società Larderello	195	35	230	June'44	0	0	0	12	10	22
Società Elettrica Valderno	442	409	851	June'44 to May 1945	62	0	62	189	163	352
Total CENTRAL ITALY	1,530	1,223	2,753		274	275	549	624	621	1,245

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

Figures in brackets expressed in thousands of KVA for columns 3,4,5 and 6)

2 Installed capacity		3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			6 Unrepaired capacity on 31 Dec. 1945 MVA			7 Remarks
Large	Total		Large	Small	Total	Large	Small	Total	Large	Small	Total	
230		June'44	0	0	0	12	10	22	183	25	208	Large substations are those with an installed capacity of 30,000 KVA and higher
851		June'44 to May 1945	62	0	62	189	163	352	253	246	499	
2,753			274	275	549	624	621	1,245	906	602	1,508	Small substations are those with an installed capacity less than 30,000 KVA.

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(Where possible estimates expressed in thousands of KVA for columns 2,4,5

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			Unre ty o
	Large	Small	Total		Large	Small	Total	Large	Small	Total	Large
NORTHERN ITALY											
Società Edison			5,700	April '45			5,115			5,418	
Società Idroelettrice Piemonte (S.I.P.)			2,427	May '45			2,291			2,334	
Società Adriatica di Elettricità (S.A.D.E.)			1,588	Oct.44 to April 45			1,234			1,390	
Azienda Elettrica Municipale Milano (A.E.M.) Milano	555	0	555	May '45	555	0	555	555	0	555	0

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(Capacities expressed in thousands of KVA for columns 2,4,5 and 6)

2 Installed capacity MVA		3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			6 Unrepaired capacity on 31 Dec. 1945 MVA			7 Remarks
Small	Total		Large	Small	Total	Large	Small	Total	Large	Small	Total	
	5,700	April '45			5,115			5,418			282	Large substations are those with an installed capacity of 30,000 KVA and higher Small substations are those with an installed capacity less than 30,000 KVA.
	2,427	May '45			2,291			2,334			93	
	1,588	Oct.44 to April 45			1,234			1,390			198	
0	555	May '45	555	0	555	555	0	555	0	0	0	

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(... capacities expressed in thousands of KVA for columns 2,4,5

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			Unre... ty o...
	Large	Small	Total		Large	Small	Total	Large	Small	Total	Large
Azienda Elettrica Municipale Torino (A.E.M.) Torino	199	127	326	April'45	159	122	281	193	127	320	6
Società Montecatini	150	47	197	May '45	150	22	172	150	41	191	0
Acciaierie e Ferriere Lombarde Falck	547	38	585	April'45	302	38	340	500	38	538	47
Società Cogne	237	0	237	April'45	237	0	237	237	0	237	0
Società Idroelettrica Ciemon	60	0	60	May '45	60	0	60	60	0	60	0

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(Figures expressed in [illegible] for columns 3,4,5 and 6)

3	4			5			6			7
Month & year of liberation by Allies	Capacity available on liberation MVA			Capacity available on 31 Dec. 1945 MVA			Unrepaired capacity on 31 Dec. 1945 MVA			Remarks
	Large	Small	Total	Large	Small	Total	Large	Small	Total	
April '45	159	122	281	193	127	320	6	0	6	Large substations are those with an installed capacity of 30,000 KVA and higher. Small substations are those with an installed capacity less than 30,000 KVA.
May '45	150	22	172	150	41	191	0	6	6	
April '45	302	38	340	500	38	538	47	0	47	
April '45	237	0	237	237	0	237	0	0	0	
May '45	60	0	60	60	0	60	0	0	0	

(cont.)

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(All figures expressed in thousands of KVA for columns 2,4,5

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			Unrep... by en...
	Large	Small	Total		Large	Small	Total	Large	Small	Total	Large
Azienda Elettrica Consorziale Bolzano e Merano	0	82	82	May '45	0	82	82	0	82	82	0
Società Industriale Trentina (S.I.T.)	65	68	133	May '45	43	68	111	43	68	111	22

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 MV PRIMARY VOLTAGE AND HIGHER

(Ratings expressed in thousands of KVA for columns 2,4,5 and 6)

1 Installed Total	3 Month & year of liberation by Allies	4 Capacity available on liberation MVA Large	4 Small	4 Total	5 Capacity available on 31 Dec. 1945 MVA Large	5 Small	5 Total	6 Unrepaired capacity on 31 Dec. 1945 MVA Large	6 Small	6 Total	7 Remarks
82	May '45	0	82	82	0	82	82	0	0	0	Large substations are those with an installed capacity of 30,000 KVA and higher
133	May '45	43	68	111	43	68	111	22	0	22	Small substations are those with an installed capacity less than 30,000 KVA.

1 of 10 pages.

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

(name plate ratings expressed in thousands of KVA for columns 2,4

1 Name of Company	2 Original installed capacity MVA			3 Month & year of liberation by Allies	4 Capacity available on liberation MVA			5 Capacity available on 31 Dec. 1945 MVA			Un ty
	Large	Small	Total		Large	Small	Total	Large	Small	Total	Large
Società Anonima Elettricità Ponale	0	7	7	May '45	0	0	0	0	0	0	0
Total NORTHERN ITALY			11,897					10,477		11,236	
State Railways	1,023	34	1,057	May '44 to April'45	333	13	346	364	13	377	6

Declassified E.O. 12356 Section 3.3/NND No. 785019

SUBSTATIONS 30 KV PRIMARY VOLTAGE AND HIGHER

...tings expressed in thousands of KVA. for columns 2,4,5 and 6)

...d	3 Month & year of liberation by Allies	4 Capacity available on liberation MVA.			5 Capacity available on 31 Dec. 1945 MVA			6 Unrepaired capacity on 31 Dec.1945 MVA.			7 Remarks
		Large	Small	Total	Large	Small	Total	Large	Small	Total	
	May '45	0	0	0	0	0	0	0	7	7	Large substations are those with an installed capacity of 30,000 KVA and higher
397				10,477			11,236			661	
57	May '44 to April'45	333	13	346	364	13	377	659	21	680	Small substations are those with an installed capacity less than 30,000 KVA.

Declassified E.O. 12356 Section 3.3/NND No. 785019

I T A L Y

LENGTH OF TRANSMISSION LINES (30 KV design voltage and higher) by Area.

(Lengths expressed in Kilometers for columns Nº 2, 3, 4 and 5)

1 AREA	2 Original length of circuit		3 Length operable on liberation		4 Length operable on 31 Dec.1945		5 Length unrepai on 31 Dec.19
	Kms	%	Kms	%	Kms	%	Kms
Sardinia	757	100	757	100	757	100	0
Sicily	700	100	435	62	700	100	0
Southern Italy	3,446	100	2,171	63	2,835	82	611
Central Italy	6,686	100	728	11	5,589	84	1,097
Northern Italy	23,041	100	15,026	65	21,808	95	1,233
Total	34,630	100	19,117	55	31,689	92	2,941
State Railways	8,387	100	1,585	19	4,121	49	4,266
TOTAL ITALY	43,017	100	20,702	48	35,810	83	7,207

0345

Declassified E.O. 12356 Section 3.3/NND No. 785019

I T A L Y

RANSMISSION LINES (30 KV design voltage and higher) by Area.

expressed in Kilometers for columns Nº 2, 3, 4 and 5)

ength it		3 Length operable on liberation		4 Length operable on 31 Dec.1945		5 Length unrepaired on 31 Dec.1945		6 Remarks
	%	Kms	%	Kms	%	Kms	%	
	100	757	100	757	100	0	0	See detail page 2
	100	435	62	700	100	0	0	" " " 2
	100	2,171	63	2,835	82	611	18	" " " 2
	100	728	11	5,589	84	1,097	16	" " " 3
	100	15,026	65	21,808	95	1,233	5	" " " 5
	100	19,117	55	31,689	92	2,941	8	
	100	1,585	19	4,121	49	4,266	51	See detail page 8
	100	20,702	48	35,810	83	7,207	17	

1 of 8 pages.

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV DESIGN VOLTAGE AND HIGHER

(length expressed in Kms)

NOTE : The above heading appears at the top of all the following pages, pertaining

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV DESIGN VOLTAGE AND HIGHER

(length expressed in Kms)

heading appears at the top of all the following pages, pertaining to exhibit nº 19

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

(Length of circuit expressed in Kilometers for column Nº 3, 5,

1 Name of Company	2 Design voltege KV	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec. 1945 Kms	Es ye co ti re
SARDINIA							
Società Elettrica Sarda (S.E.S.)	70	757	Sept.943	757	757	0	
SICILY							
Società Generale Elettrica della Sicilia (S.G.E.S.)	70 40	370 330	July to August'43	170 265	370 330	0 0	
Total SICILY		700		435	700	0	
SOUTHERN ITALY							
Ente Autonomo Volturno (E.A.V.)	60	194	October to Dec.1944	0	0	194	1

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

ngth of circuit expressed in Kilometers for column N° 3, 5, 6 and 7)

2 esign oltage KV	3 Original length of circuit Kms	4 Month & year of libera-tion	5 Length operable on libe-ration Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepai-red on 31 Dec. 1945 Kms	8 Estimated year of comple-tion of repairs	9 Remarks
70	757	Sept.943	757	757	0	-	See exhibit-part.2
70	370	July to	170	370	0	-	" " " 3
40	330	August'43	265	330	0	-	" " "
	700		435	700	0		
60	194	October to Dec.1944	0	0	194	1947	See exhibit-part 4

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

(Length of circuit expressed in kilometers for column Nº 3, 5, 6 a

1 Name of Company	2 Design voltage KV	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec. 1945 Kms	8 Estim. year compl. tion repai.
Società Meridionale di Elettricità (S.M.E.)	150	1,137	October 1943 to June 1944	855	1,059	78	1946
	80	304		125	175	129	1946
	60	1,559		1,004	1,349	210	1946
	30	252		187	252	0	-
Total SOUTHERN ITALY		3,446		2,171	2,835	611	
CENTRAL ITALY							
Azienda Comunale Elettricità e Acque (A.C.E.A.)	150	94	June 944	0	94	0	-
	60	341	June 944	6	341	0	-
	30	137	June 944	12	63	74	

Exhibit No. 19 page 3. of 8 pages.

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

of circuit expressed in kilometers for column Nº 3, 5, 6 and 7)

e	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec.1945 Kms	8 Estimated year of completion of repairs	9 Remarks
	1,137	October 1943 to June 1944	855	1,059	78	1946-47	See exhibit-part 4
	304		125	175	129	1946	" " "
	1,559		1,004	1,349	210	1946-47	
	252		187	252	0	-	
	3,446		2,171	2,835	611		
	94	June 944	0	94	0	-	See exhibit-part 4
	341	June 944	6	341	0	-	" " "
	137	June 944	12	63	74		

- of 8 pages.

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

(Length of circuit expressed in kilometers for colums Nº 3, 5, 6

1 Name of Company	2 Design voltage KV	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec.1945 Kms	Est. yea con ti re
Società Romana di Elettricità (S.R.E.)	150	192	May to June 1944	0	192	0	
	60	914		0	729	185	
	30	89		0	89	0	
Società Terni	230	168	June 944	0	0	168	
	150	145	June 944	0	129	16	
	120	296	July 944	0	205	91	
	70	20	June 944	0	20	0	
	30	64	June 944	0	43	21	
Unione Esercizi Elettrici (U.N.E.S.)	60	560	June to July 944	180	530	30	
	30	1,527		530	1,300	227	

Exhibit No. 19 page 4 of 8 pages.

Declassified E.O. 12356 Section 3.3/NND No. 785019

NSMISSION LINES - 30 KV design voltage and higher

circuit expressed in kilometers for colums Nº 3, 5, 6 and 7)

3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec.1945 Kms	8 Estimated year of completion of repairs	9 Remarks
192	May to June 1944	0	192	0	1948	See exhibit-aprt 4
914		0	729	185		" " "
89		0	89	0		
168	June 944	0	0	168	1947	" " "
145	June 944	0	129	16	1946	" " "
296	July 944	0	205	91	1947	" " "
20	June 944	0	20	0	-	" " "
64	June 944	0	43	21	1946	" " "
560	June to July 944	180	530	30	1946	" " "
1,527		530	1,300	227	1946	"

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and

(Length of circuit expressed in Kilometers for column

1 Neme of Company	2 Design voltage KV	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec 1945 Kms	Len unre red Dec
Società Elettrica Valdarno	120 65 35	355 996 788	June to August 1944	0 0 0	314 882 658	
Total CENTRAL ITALY		6,686		728	5,589	1,
NORTHERN ITALY						
Acciaierie e Ferriere Lombarde Falck	220 75	111 1,187	April 945 April 945	111 892	111 1,187	
Società Montecatini	135 70 30	582 146 43	May '45 May '45 May '45	565 134 28	582 140 28	

Exhibit No. 19 page 5 of 8 pages.

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

Length of circuit expressed in Kilometers for column N° 3, 5, 6 and 7)

2 Design voltage KV	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec.1945 Kms	8 Estimated year of completion of repairs	9 Remarks
120	355	June to	0	314	41	1946	See exhibit-part 4
65	996	August	0	882	114	1946	" " "
35	788	1944	0	658	130	1946	" " "
	6,686		728	5,589	1,097		
220	111	April 945	111	111	0	-	See exhibit-part 5
75	1,187	April 945	892	1,187	0	-	" " "
135	582	May '45	565	582	0		" " "
70	146	May '45	134	140	6		" " "
30	43	May '45	28	28	15		" " "

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

(Length of circuit expressed in kilometers for column N° 3, 5,

1 Name of Company	2 Design voltage KV	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec 1945 Kms	7 Length unrepaired on 31 Dec.1945 Kms	E y o t r
Società Adriatica di Elettricità (S.A.D.E.)	130 50 30	1,020 2,200 390	Oct.1944 to May 1945	120 700 140	872 1,946 327	148 254 63	
Società Idroelettrica del Cismon	125	191	May 1945	191	191	0	
Società Edison	130 75 70 65 60 55 50 45 40 30	4,395 2,669 653 662 518 25 2,114 723 373 675	" " " " " " " " " " " " " " " " " " " "	3,379 830 202 662 374 25 1,863 723 373 675	4,236 2,163 653 662 518 25 2,114 723 373 675	159 506 0 0 0 0 0 0 0 0	

Declassified E.O. 12356 Section 3.3/NND No. 785019

RANSMISSION LINES - 30 KV design voltage and higher

circuit expressed in kilometers for column Nº 3, 5, 6 and 7)

3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec 1945 Kms	7 Length unrepaired on 31 Dec.1945 Kms	8 Estimated year of completion of repairs	9 Remarks
1,020	Oct.1944	120	872	148		See exhibit-part 5
2,200	to	700	1,946	254		" " "
390	May 1945	140	327	63		" " "
191	May 1945	191	191	0	-	" " "
4,395	" "	3,379	4,236	159	1947	" " "
2,669	" "	830	2,163	506	1947	" " "
653	" "	202	653	0	-	" " "
662	" "	662	662	0	-	" " "
518	" "	374	518	0	-	" " "
25	" "	25	25	0	-	" " "
2,114	" "	1,863	2,114	0	-	" " "
723	" "	723	723	0	-	" " "
373	" "	373	373	0	-	" " "
675	" "	675	675	0	-	" " "

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

(Length of circuit expressed in Kilometers for column N° 3, 5, 6 &

1 Name of Company	2 Design voltage KV	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec. 1945 Kms	8 Esti year comp tion repa
Società Idroelettrica Piemonte (S.I.P.)	50	800	May 945	780	800	0	-
	70	1,091	" "	540	1,091	0	-
	130	1,162	" "	674	1,162	0	-
Azienda Elettrica Municipale (AEM) Milan	135	503	May 945	501	501	2	
	60	4	" "	4	4	0	-
Azienda Elettrica Consorziale Bolzano & Merano	66	88	May 945	88	88	0	-
Società Industriale Trentina (S.I.T.)	70	160	May 945	44	160	0	-
Azienda Elettrica Municipale (AEM) Turin	90	122	April'45	114	122	0	-
	50	161	April'45	149	155	6	-
Compagnia Nazionale Imprese Elettriche CO.N.I.EL.	230	224	August'44 to April '45	96	150	74	19

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

of circuit expressed in Kilometers for column N° 3, 5, 6 and 7)

ge	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec.1945 Kms	8 Estimated year of completion of repairs	9 Remarks
	800	May 945	780	800	0	-	See exhibit-part 5
	1,091	" "	540	1,091	0	-	" " "
	1,162	" "	674	1,162	0	-	" " "
	503	May 945	501	501	2		" " "
	4	" "	4	4	0	-	" " "
	88	May 945	88	88	0	-	" " "
	160	May 945	44	160	0	-	" " "
	122	April'45	114	122	0	-	" " "
	161	April'45	149	155	6	-	" " "
	224	August'44 to April '45	96	150	74	1946	" " "

Declassified E.O. 12356 Section 3.3/NND No. 785019

TRANSMISSION LINES - 30 KV design voltage and higher

(Length of circuit expressed in Kilometers for column N° 3, 5,

1 Name of Company	2 Design voltage KV	3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec. 1945 Kms	E y o t r
Società Anonima Nazionale Cogne	50	49	April '45	49	49	0	
Total NORTHERN ITALY		23,041		15,026	21,808	1,233	
FERROVIE DELLO STATO (State Railways)	60	4,370	Oct.1943 to Apr.'45	1,485	2,761	1,609	
	88	22		0	0	22	
	130	3,995		100	1,360	2,635	
Total RAILWAYS		8,387		1,585	4,121	4,266	

Exhibit No. 19 page 8 of 8 pages.

Declassified E.O. 12356 Section 3.3/NND No. 785019

(7

ANSMISSION LINES - 30 KV design voltage and higher

circuit expressed in Kilometers for column Nº 3, 5, 6 and 7)

3 Original length of circuit Kms	4 Month & year of liberation	5 Length operable on liberation Kms	6 Length operable on 31 Dec. 1945 Kms	7 Length unrepaired on 31 Dec.1945 Kms	8 Estimated year of completion of repairs	9 Remarks
49	April '45	49	49	0	-	See exhibit-part 5
23,041		15,026	21,808	1,233		
4,370	Oct.1943 to Apr.'45	1,485	2,761	1,609	-	See exhibit - part 4 and 5
22		0	0	22	1946	" "
3,995		100	1,360	2,635	1946	" "
8,387		1,585	4,121	4,266		

of 8 pages.

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Declassified E.O. 12356 Section 3.3/NND No. 785019

ACC 320/PWU 10000/150/657 (2 OF 2) DATA FO
RICAL D
SEPT. 194

Declassified E.O. 12356 Section 3.3/NND No. 785019

50/657 (2 OF 2) DATA FOR FINAL REPORT (ELECTRICAL DIVISION)
SEPT. 1943 – SEPT. 1946

EXHIBIT Nº 22
IN 5 PARTS

TRANSMISSION LINE MAPS

CONTENTS:

Legend & explanation of symbols. part 1

Sardinia map. part 2

Sicily map. part 3

Southern & Central Italy map. part 4

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TRANSMISSION LINE MAPS

CONTENTS:

Legend & explanation of symbols. part 1

Sardinia map. part 2

Sicily map. part 3

Southern & Central Italy map. part 4

Northern Italy map. part 5

4119

Declassified E.O. 12356 Section 3.3/NND No. 785019

Exhibit No. 22

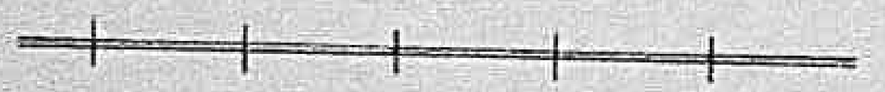
Part one of five parts

LEGEND

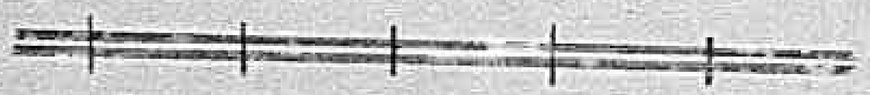
Printed line - no additional color — undamaged line

single circuit line - damaged

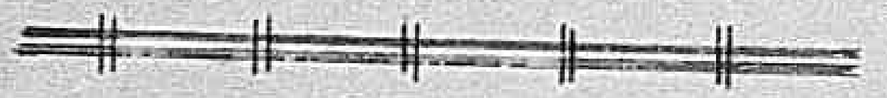
double circuit line - damaged



single circuit line - repaired



double circuit line - only one circuit repaired

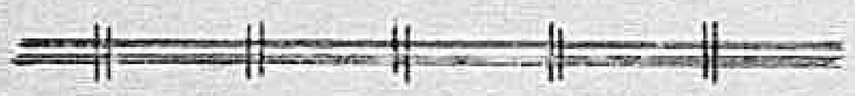


double circuit line - both circuits repaired

NOTE : Represents situation as of about 1 June 1946.

NOTE : Reference numbers apposite each transmission line give identity of Company owning line, and voltage of the line, i.e. 108 - 120.
The figure 108 identifies the line as being the property of the Terni Co. and the figure 120 represents the voltage (in KV).
For complete index of Companies and numbers see other side of this folder.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Printed line - no additional color	undamaged line
	single circuit line - damaged
	double circuit line - damaged
	single circuit line - repaired
	double circuit line - only one circuit repaired
	double circuit line - both circuits repaired

NOTE : Represents situation as of about 1 June 1946.

NOTE : Reference numbers apposite each transmission line give identity of Company owning line, and voltage of the line, i.e. 108 - 120.
The figure 108 identifies the line as being the property of the Terni Co. and the figure 120 represents the voltage (in KV).
For complete index of Companies and numbers see other side of this folder.
Attention is called to the fact that while a Company may have a considerable spread of reference numbers assigned to it, it may not actually have that many lines i.e. the Terni Co. reference numbers are 101 to 130 but the highest number actually identifying a Terni Co. line is 114.

Declassified E.O. 12356 Section 3.3/NND No. 785019

AREA	NAME OF COMPANY	Reference number for transmission lines	
		Between	and
SARDINIA	Società Elettrica Sarda (S.E.S.)	001 -	0050
SICILY	Società Generale Elettrica Sicilia (S.G.E.S.)	01 -	037
SOUTHERN ITALY	Società Meridionale di Elettricità (S.M.E.)	50 -	77
		79 -	100
	Ente Autonomo del Volturno (E.A.V.)	78	
CENTRAL ITALY	Azienda Comunale Elettricità Acque (A.C.E.A.)	1 -	19
	Società Romana Elettricità (S.R.E.)	20 -	49
	Società Terni	101 -	130
	Unione Esercizi Elettrici (U.N.E.S.)	131 -	179
	Società Elettrica Valdarno	180 -	230
NORTHERN ITALY	Acciaierie e Ferriere Lombarde Falck	230 -	249
	Società Montecatini	250 -	299
	Società Adriatica di Elettricità (S.A.D.E.)	300 -	479
	Società Idroelettrica del Cismon	480 -	499
	Società Edison	500 -	749
	Società Idroelettrica Piemonte (S.I.P.)	750 -	899
	Azienda Elettrica Municipale Milano (A.E.M.)	900 -	909
	Azienda Elettrica Consorziale Bolzano e Merano	910 -	919
	Società Industriale Trentina (S.I.T.)	920 -	929
	Azienda Elettrica Municipale Torino (A.E.M.)	930 -	940
	Compagnia Nazionale Imprese Elettriche (CO.N.I.EL.)	941 -	950
	Società Anonima Nazionale Cogne	960 -	970

Declassified E.O. 12356 Section 3.3/NND No. 785019

CENTRAL ITALY	Azienda Comunale Elettricità Acque (A.C.E.A.)	1 - 19
	Società Romana Elettricità (S.R.E.)	20 - 49
	Società Terni	101 - 130
	Unione Esercizi Elettrici (U.N.E.S.)	131 - 179
	Società Elettrica Valdarno	180 - 230
NORTHERN ITALY	Acciaierie e Ferriere Lombarde Falck	230 - 249
	Società Montecatini	250 - 299
	Società Adriatica di Elettricità (S.A.D.E.)	300 - 479
	Società Idroelettrica del Cismon	480 - 499
	Società Edison	500 - 749
	Società Idroelettrica Piemonte (S.I.P.)	750 - 899
	Azienda Elettrica Municipale Milano (A.E.M.)	900 - 909
	Azienda Elettrica Consorziale Bolzano e Merano	910 - 919
	Società Industriale Trentina (S.I.T.)	920 - 929
	Azienda Elettrica Municipale Torino (A.E.M.)	930 - 940
	Compagnia Nazionale Imprese Elettriche (CO.N.I.EL.)	941 - 950
	Società Anonima Nazionale Cogne	960 - 970
FERROVIE DELLO STATO (State Railways)		1000 and higher

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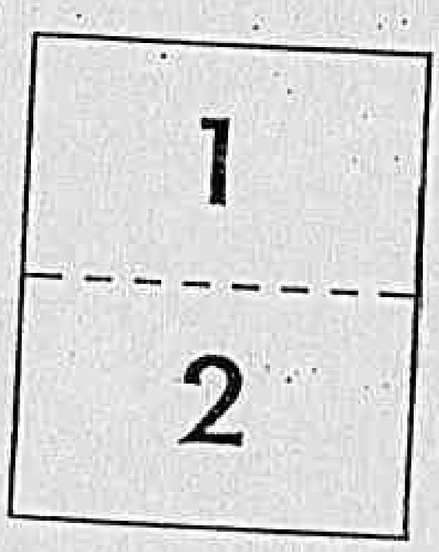
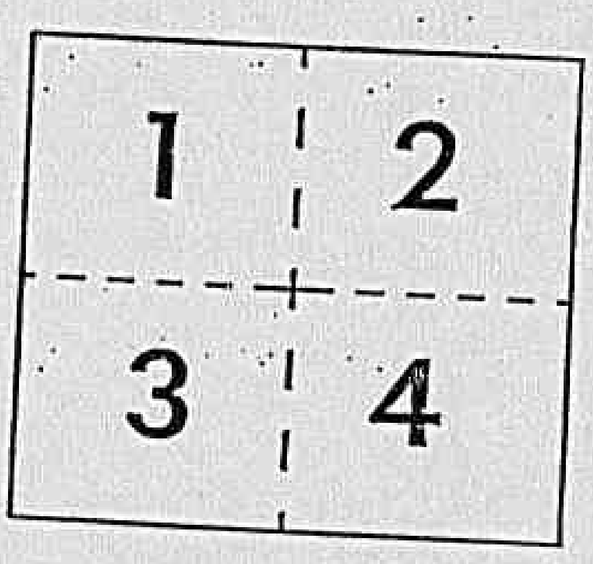
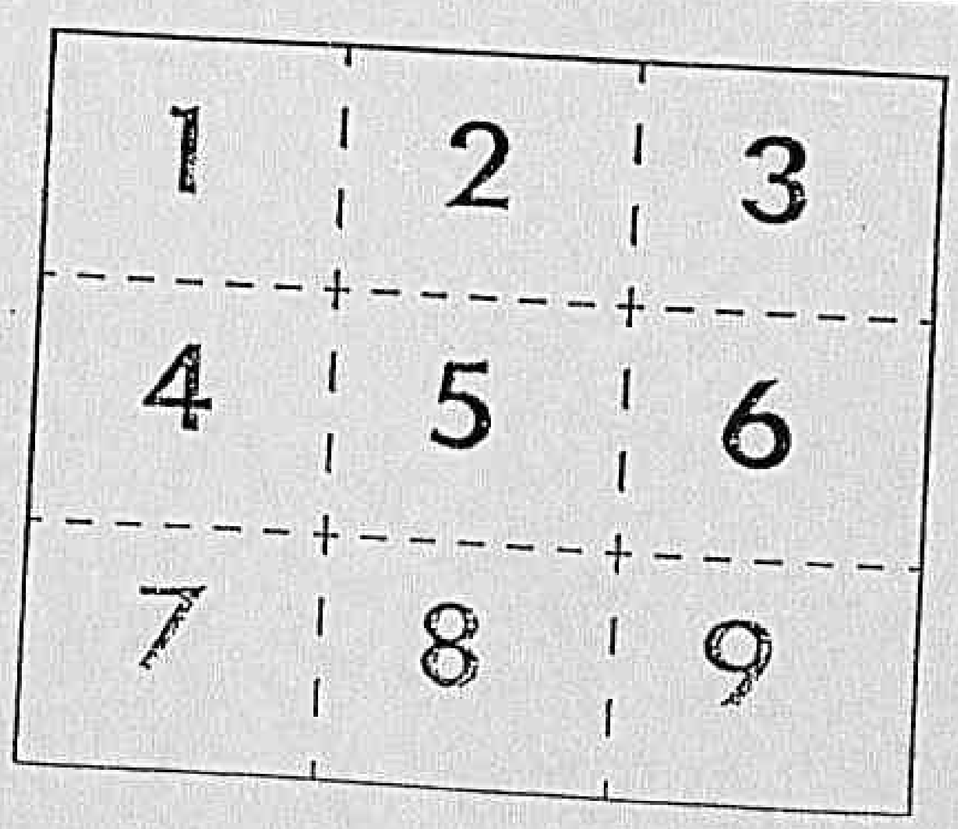
Declassified E.O. 12356 Section 3.3/NND No. 785019

MAPS AND CHARTS TOO LARGE TO FILM ON ONE EXPOSURE ARE FILMED CLOCKWISE BEGINNING IN THE UPPER LEFT CORNER, LEFT TO RIGHT, AND TOP TO BOTTOM.

SEE DIAGRAMS BELOW.







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Declassified E.O. 12356 Section 3.3/NND No. 785019

LEGEND

SCALE 1: 2,500,000

50 30 10 0 30 100 MILES
40 20

COMPARTMENT BOUNDARIES ---------

PROVINCIAL " ---------

REGIONAL " .....

REGIONAL COLOR

REGION I - RED	REGION V - GREEN	REGION IX - YELLOW
" II - BLUE	" VI - YELLOW	" X - GREEN
" III YELLOW	" VII - BLACK	" XI - RED
" IV RED	" VIII - BLUE	" XII - BLUE
		" ROME-YELLOW

COMPARTIMENTS	PROVINCIES
PIEMONTE	ALESSANDRIA AOSTA ASTI CUNEO NOVARA TORINO VERCELLI
LOMBARDIA	BERGAMO BRESCIA COMO CREMONA MANTOVA MILANO PAVIA SONDRIO VARESE
LIGURIA	GENOVA IMPERIA LA SPEZIA SAVONA
VENEZIA TRID.	BOLZANO TRENTO
VENETO	BELLUNO UDINE PADOVA ROVIGO TREVISO VENEZIA VERONA VICENZA
VENEZIA GIULIA E ZARA	FIUME GORIZIA POLA TRIESTE ZARA
EMILIA	BOLOGNA FERRARA FORLI MODENA PARMA PIACENZA RAVENNA REGGIO
TOSCANA	AREZZO FIRENZE GROSSETO LIVORNO LUCCA MASSA PISA PISTOIA SIENA
MARCHE	ANCONA ASCOLI MACERATA PESARO
UMBRIA	PERUGIA TERNI
LAZIO	FROSINONE LITTORIA RIETI ROMA VITERBO
ABRUZZI E MOLISE	AQUILA CAMPOBASSO CHIETI PESCARA TERAMO
	AVELLINO

Declassified E.O. 12356 Section 3.3/NND No. 785019

LEGEND

SCALE 1: 2,500,000

50 30 10 0 30 100 MILES
40 20

COMPARTMENT BOUNDARIES ---------

PROVINCIAL " ---------

REGIONAL " .....

REGIONAL COLOR

REGION I - RED	REGION V - GREEN	REGION IX - YELLOW
" II - BLUE	" VI - YELLOW	" X - GREEN
" III YELLOW	" VII - BLACK	" XI - RED
" IV RED	" VIII - BLUE	" XII - BLUE
		" ROME-YELLOW

VENETO

COMPARTMENTS	PROVINCES	ITALIAN ENGINEER
PIEMONTE	ALESSANDRIA AOSTA ASTI CUNEO NOVARA TORINO VERCELLI	
LOMBARDIA	BERGAMO BRESCIA COMO CREMONA MANTOVA MILANO PAVIA SONDRIO VARESE	
LIGURIA	GENOVA IMPERIA LA SPEZIA SAVONA	
VENEZIA TRID.	BOLZANO TRENTO	
VENETO	BELLUNO UDINE PADOVA ROVIGO TREVISO VENEZIA VERONA VICENZA	
VENEZIA GIULIA E ZARA	FIUME GORIZIA POLA TRIESTE ZARA	
EMILIA	BOLOGNA FERRARA FORLI' MODENA PARMA PIACENZA RAVENNA REGGIO	
TOSCANA	AREZZO FIRENZE GROSSETO LIVORNO LUCCA MASSA PISA PISTOIA SIENA	
MARCHE	ANCONA ASCOLI MACERATA PESARO	
UMBRIA	PERUGIA TERNI	
LAZIO	FROSINONE LITTORIA RIETI ROMA VITERBO	
ABRUZZI E MOLISE	AQUILA CAMPOBASSO CHIETI PESCARA TERAMO	
	AVELLINO	

Declassified E.O. 12356 Section 3.3/NND No. 785019

X

ASTI

ALESSANDRIA

PIACENZA

ROVIGO

PARMA

REGGIO

FERRARA

CUNEO

GENOVA

MODENA

IX

EMIL

SAVONA

BOLOGNA

RAVENNA

LA SPEZIA

MASSA

FORLI

IMPERIA

LIGURIA

REP. S.M.

LUCCA

PISTOIA

FIRENZE

PESARO

PISA

LIVORNO

AREZZO

TOSCANA

VIII

ANCO

PERUGIA

MACERA

SIENA

GROSSETO

CENTRAL

UMBRIA

VITERBO

TERNI

RIETI

IV

CORSICA (F.R.)

EXHIBIT N°20

ROME REGION

ROMA

LAZIO

LITT

CAMPANIA

SASSARI

NUORO

VI

SARDEGNA

CAGLIARI

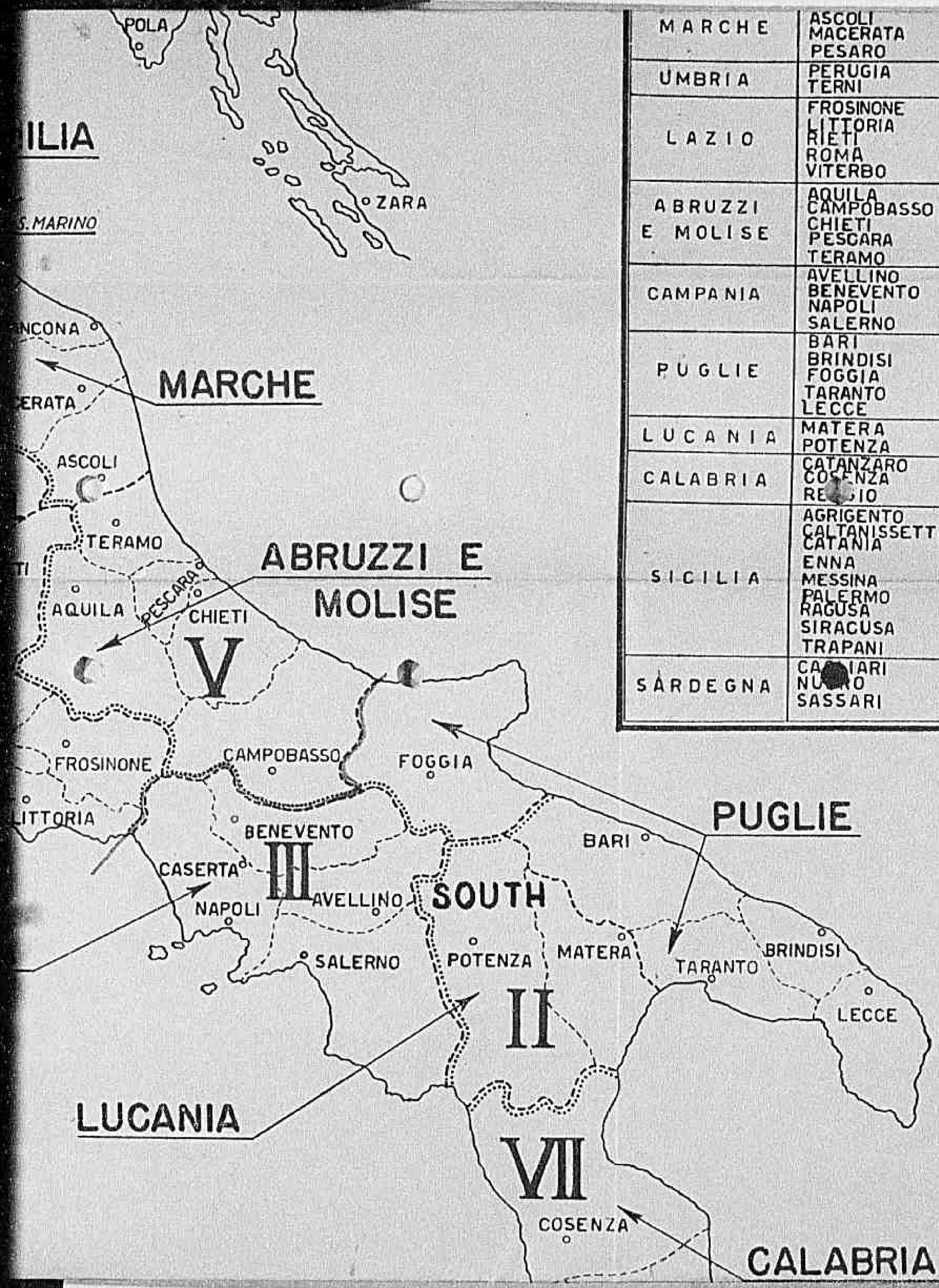
Declassified E.O. 12356 Section 3.3/NND No. 785019

ROVIGO
FERRARA
REGGIO
MODENA
IX
EMILIA
RAVENNA
BOLOGNA
FORLI
RPP. S.MARINO
PISTOIA
LUCCA
FIRENZE
PISA
PESARO
ANCONA
AREZZO
LIVORNO
VIII
MARCHE
PERUGIA
MACERATA
SIENA
ASCOLI
GROSSETO
CENTRAL
TERAMO
MBRIA
VITERBO
TERNI
RIETI
ABRUZZI E
MOLISE
AQUILA
PESCARA
CHIETI
IV
V
ROME
REGION
ROMA
LAZIO
FROSINONE
CAMPOBASSO
FOGGIA
PUGLIE
LITTORIA
BENEVENTO
BARI
CASERTA
III
AVELLINO
SOUTH
NAPOLI
CAMPANIA
SALERNO
POTENZA
MATERA
BRINDIS
TARANTO
II
LUCANIA
VII
COSENZA
CAL
DEGNA

POLA
ZARA

MARCHE	ASCO MACE PESA
UMBRIA	PERU TERN
LAZIO	FROS LITT RIET ROMA VITER
ABRUZZI E MOLISE	AQUI CAMP CHIE PESC TERA
CAMPANIA	AVEL BENE NAPO SALE
PUGLIE	BARI BRIN FOGG TARA LECC
LUCANIA	MATE POTE
CALABRIA	CATA CO RE
SICILIA	AGRI CALT CATA ENNA MESS PALE RAGU SIRA TRA
SARDEGNA	CA NU SAS

Declassified E.O. 12356 Section 3.3/NND No. 785019



MARCHE	ASCOLI MACERATA PESARO	
UMBRIA	PERUGIA TERNI	
LAZIO	FROSINONE LITTORIA RIETI ROMA VITERBO	
ABRUZZI E MOLISE	AQUILA CAMPOBASSO CHIETI PESCARA TERAMO	
CAMPANIA	AVELLINO BENEVENTO NAPOLI SALERNO	
PUGLIE	BARI BRINDISI FOGGIA TARANTO LECCE	
LUCANIA	MATERA POTENZA	
CALABRIA	CATANZARO COSENZA REGGIO	
SICILIA	AGRIGENTO CALTANISSETTA CATANIA ENNA MESSINA PALERMO RAGUSA SIRACUSA TRAPANI	
SARDEGNA	CAGLIARI NUORO SASSARI	

Declassified E.O. 12356 Section 3.3/NND No. 785019

CAMPANIA

SARDEGNA

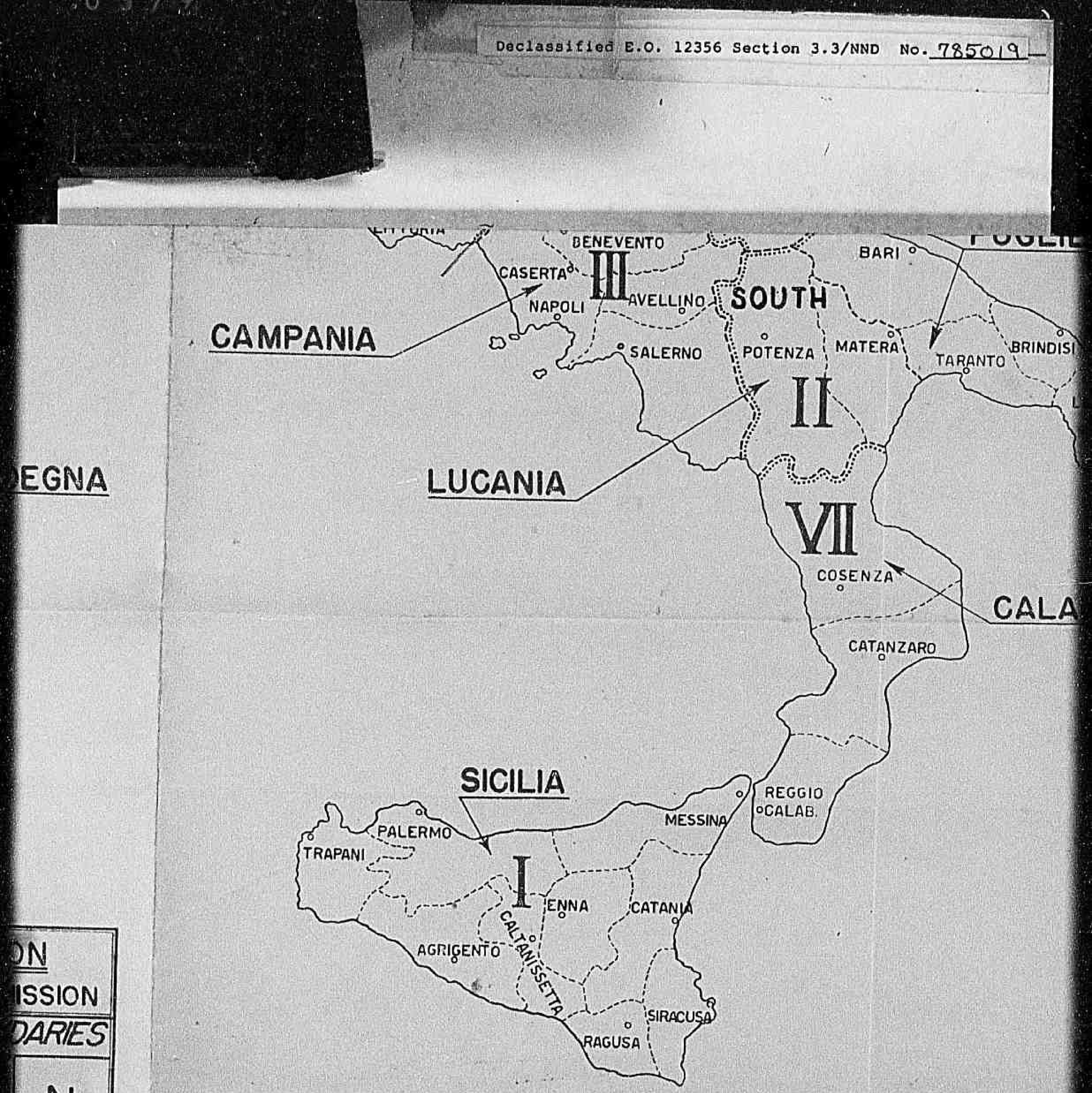
ALLIED CONTROL COMMISSION

PUBLIC WORKS AND UTILITIES SUB-COMMISSION

MAP SHOWING ACC REGIONAL BOUNDARIES

REVISIONS	DRAWN BY	No. 1
	CHECKED BY	
	APPROVED BY	

Declassified E.O. 12356 Section 3.3/NND No. 785019



ON
ISSION
DARIES

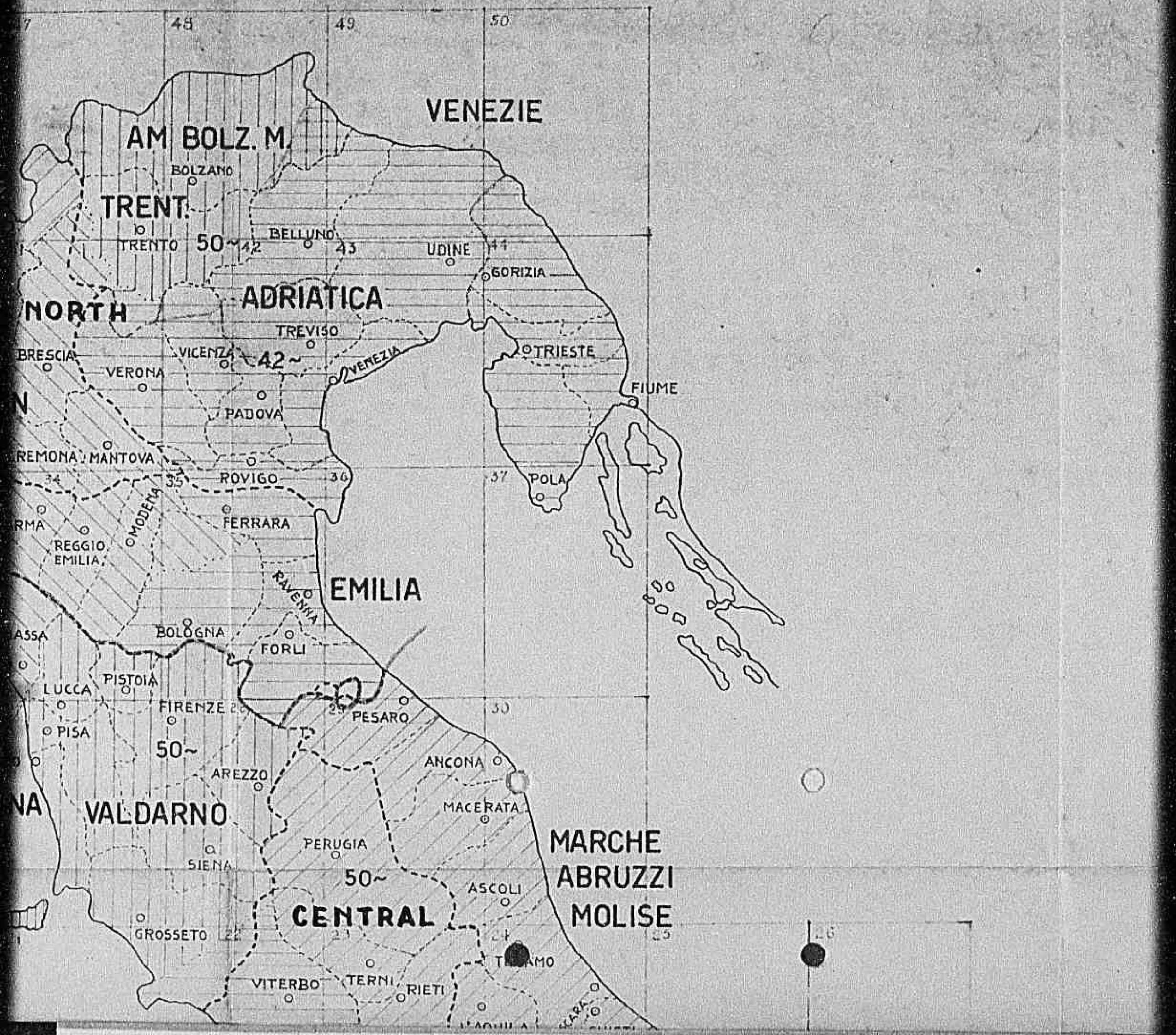
No.
1

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

EXHIBIT NO 21

Declassified E.O. 12356 Section 3.3/NND No. 785019



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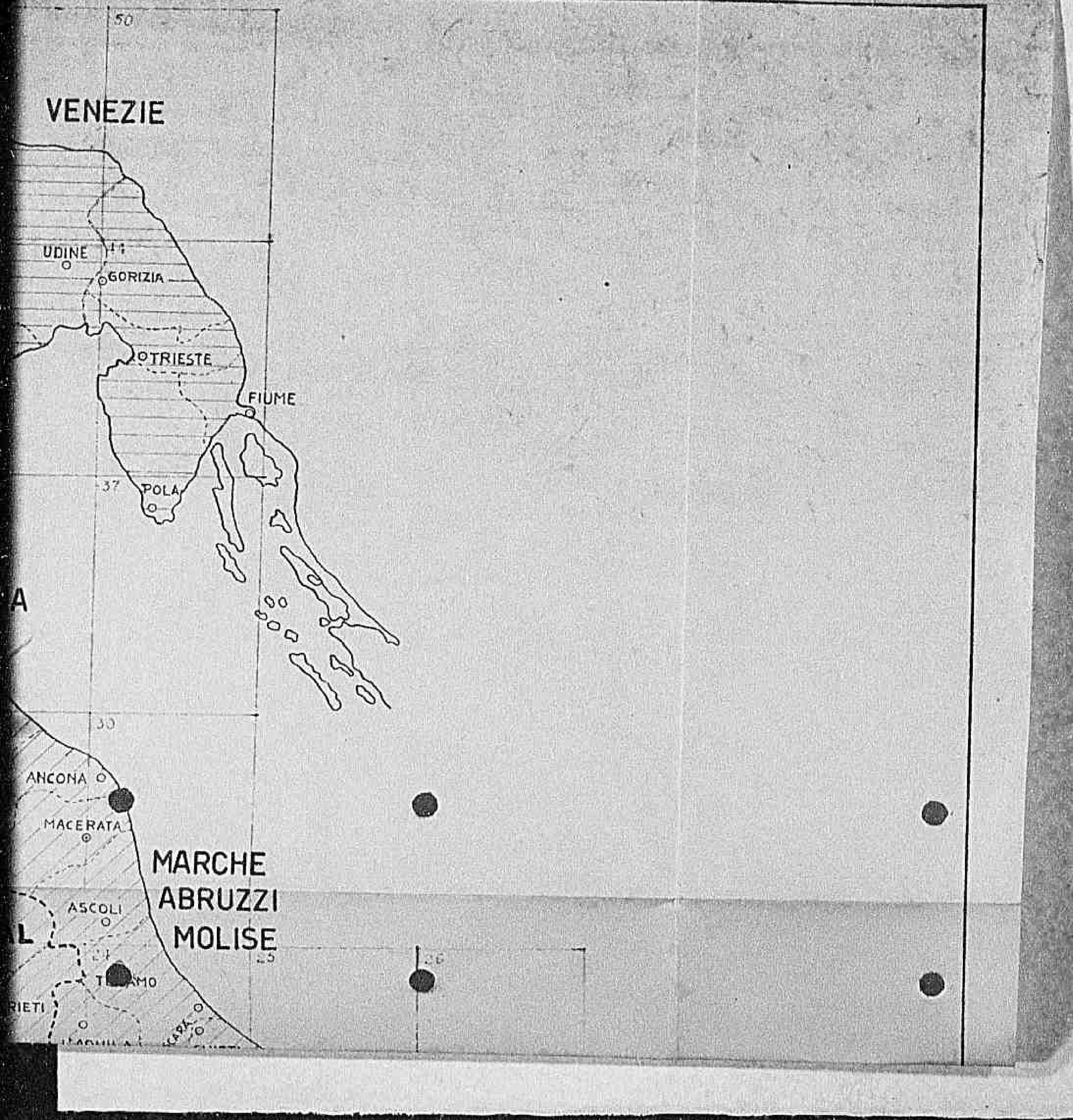
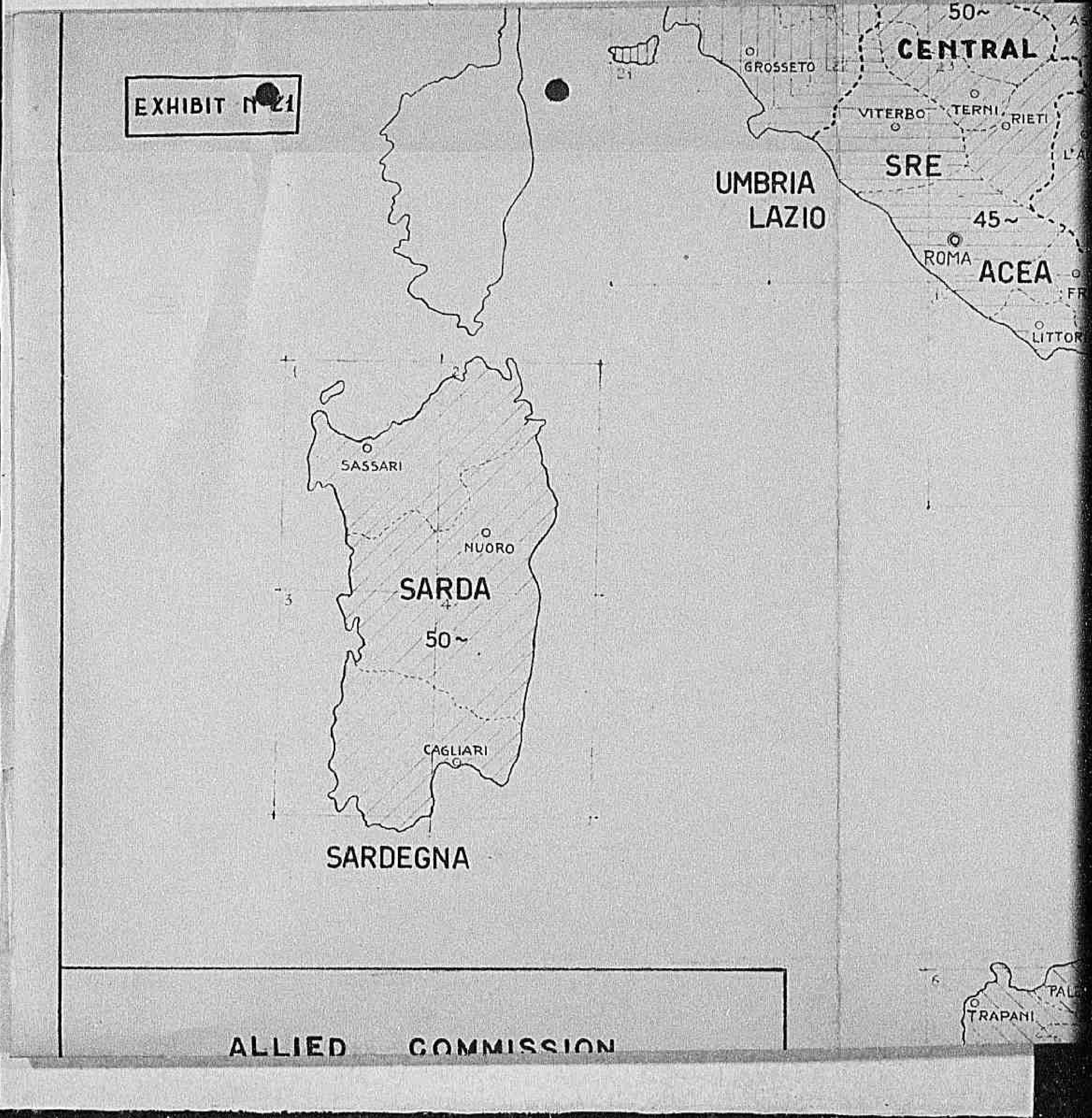


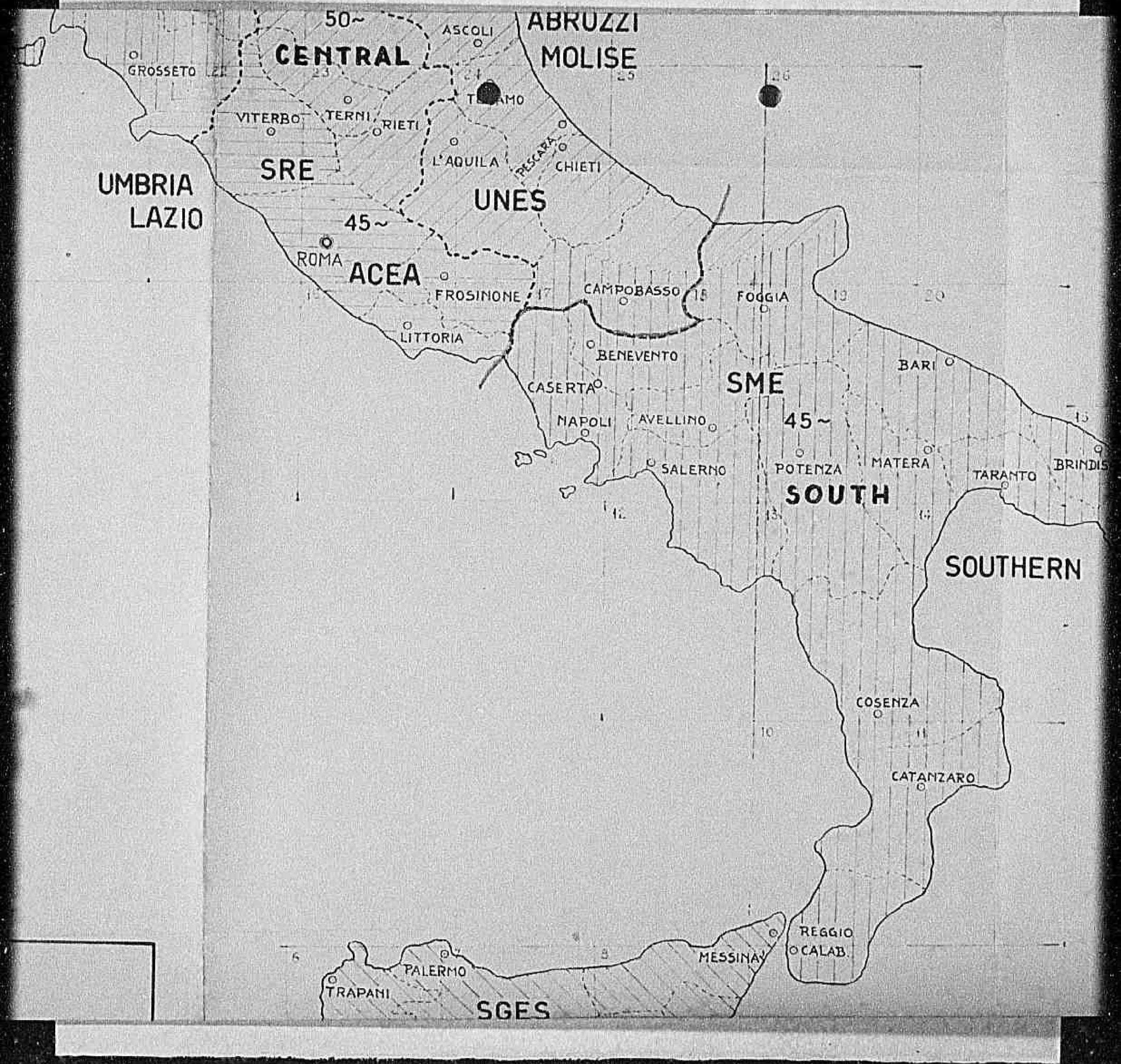
Declassified E.O. 12356 Section 3.3/NND No. 785019

EXHIBIT N° 21

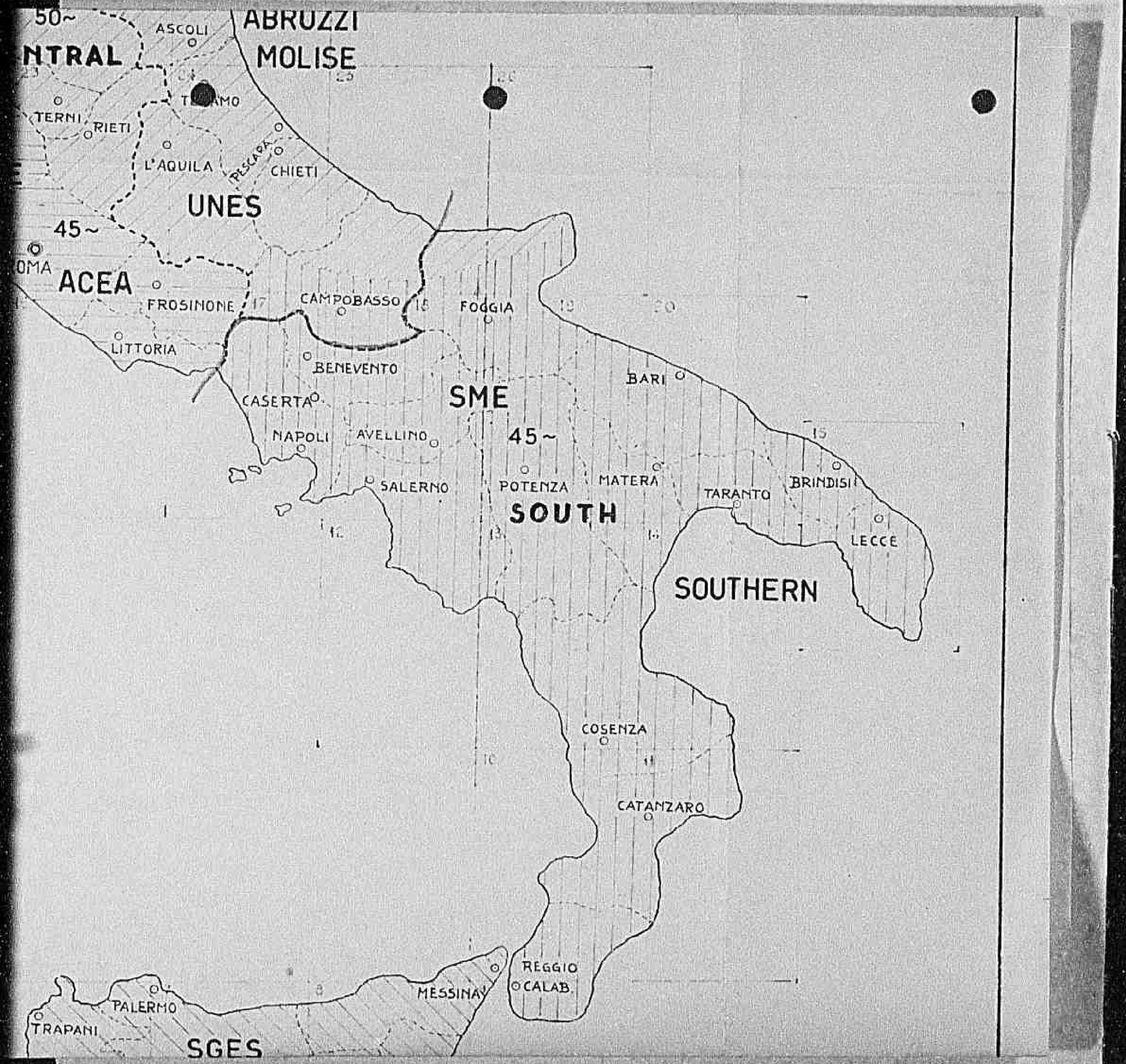


ALLIED COMMISSION

Declassified E.O. 12356 Section 3.3/NND No. 785019



Declassified E.O. 12356 Section 3.3/NND No. 785019



Declassified E.O. 12356 Section 3.3/NND No. 785019

ALLIED COMMISSION

PUBLIC WORKS AND UTILITIES SUB-COMMISSION

ELECTRICITY — ITALY

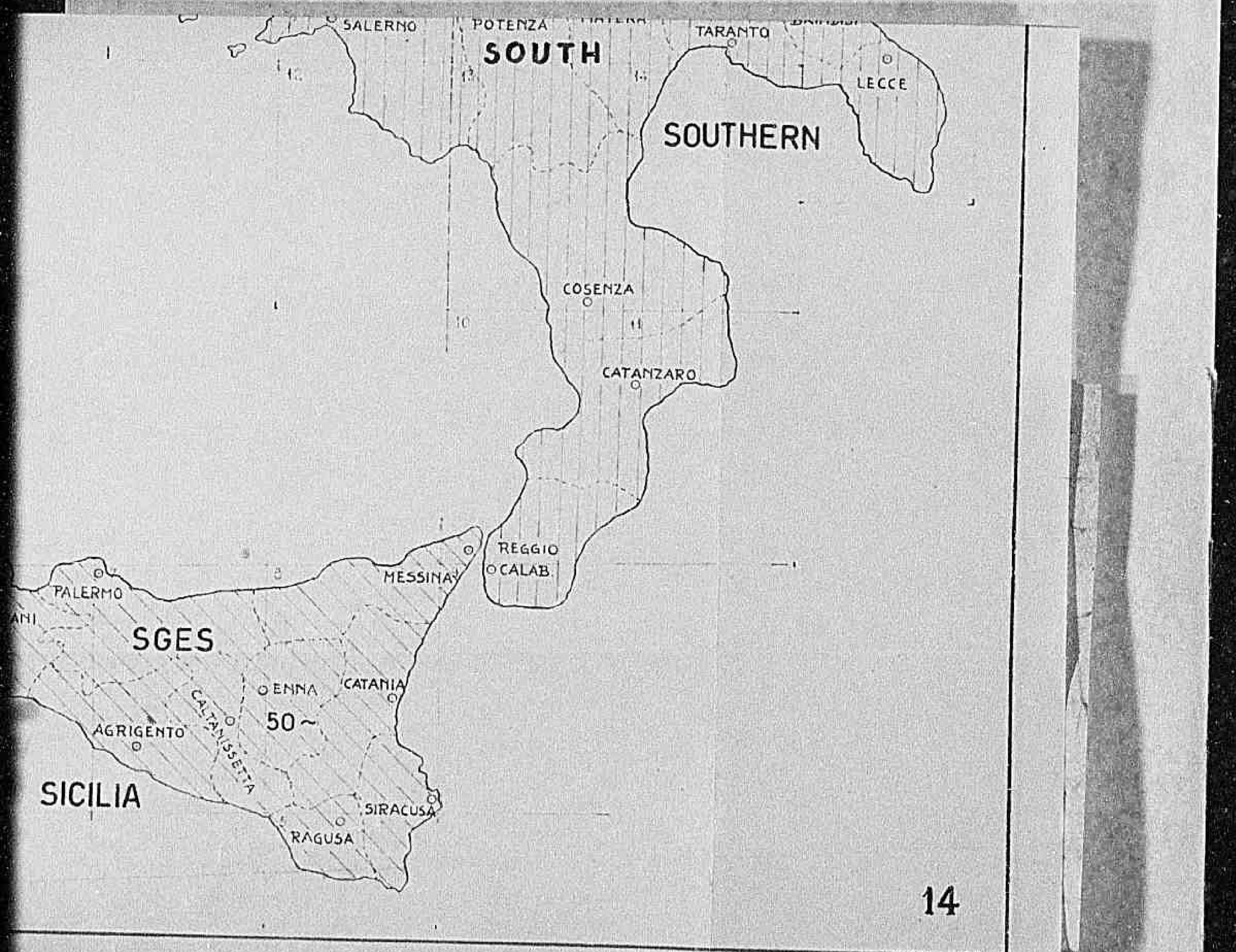
ELECTRIC COMPANY AND FREQUENCY BOUNDARIES

Declassified E.O. 12356 Section 3.3/NND No. 785019

MMISSION

AND
RIES

Declassified E.O. 12356 Section 3.3/NND No. 785019

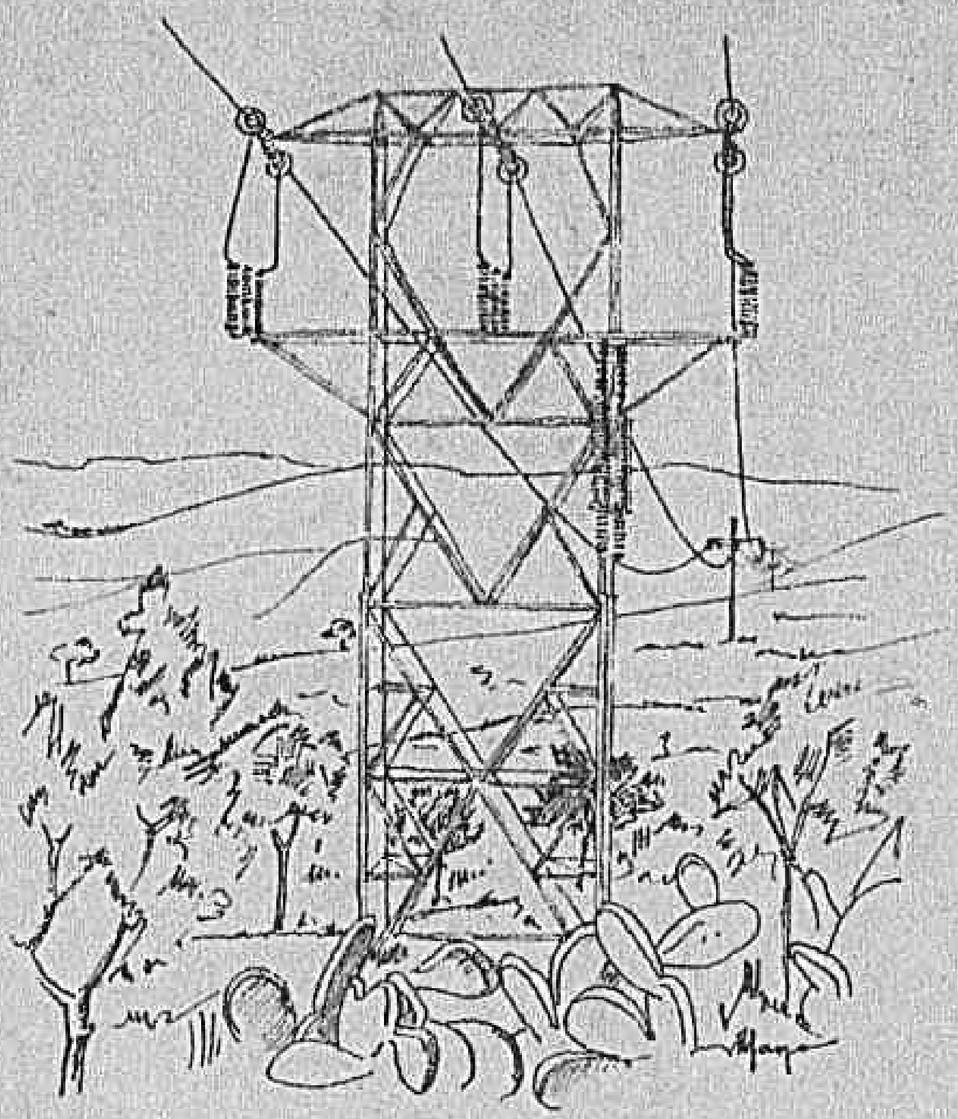


Declassified E.O. 12356 Section 3.3/NND No. 785019

ALLIED COMMISSION
PUBLIC WORKS AND UTILITIES DEPARTMENT
ELECTRICAL DIVISION

EXHIBIT Nº22
PART 2
OF 5 PARTS

ELECTRICITY-ITALY
HIGH VOLTAGE TRANSMISSION LINES



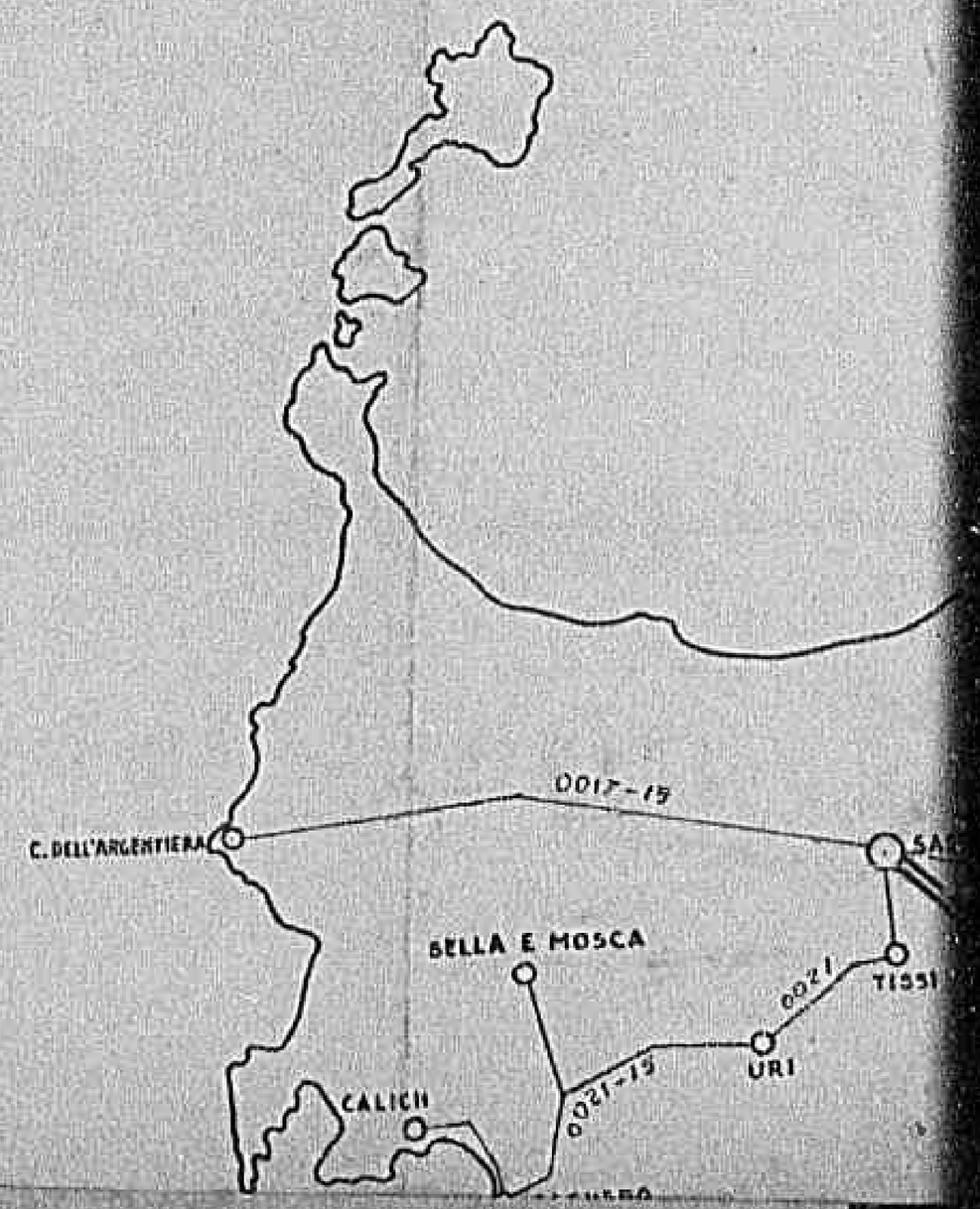
LEGEND

SIGNIFICANCE OF NUMBERS OVER LINES

FIRST NUMBER	reference number in files of P.W.& U. Dept. Elec. Div.
SECOND NUMBER	operating voltage in KV
Nº IN PARENTHESIS	design voltage in KV

LINE DESIGN VOLTAGE

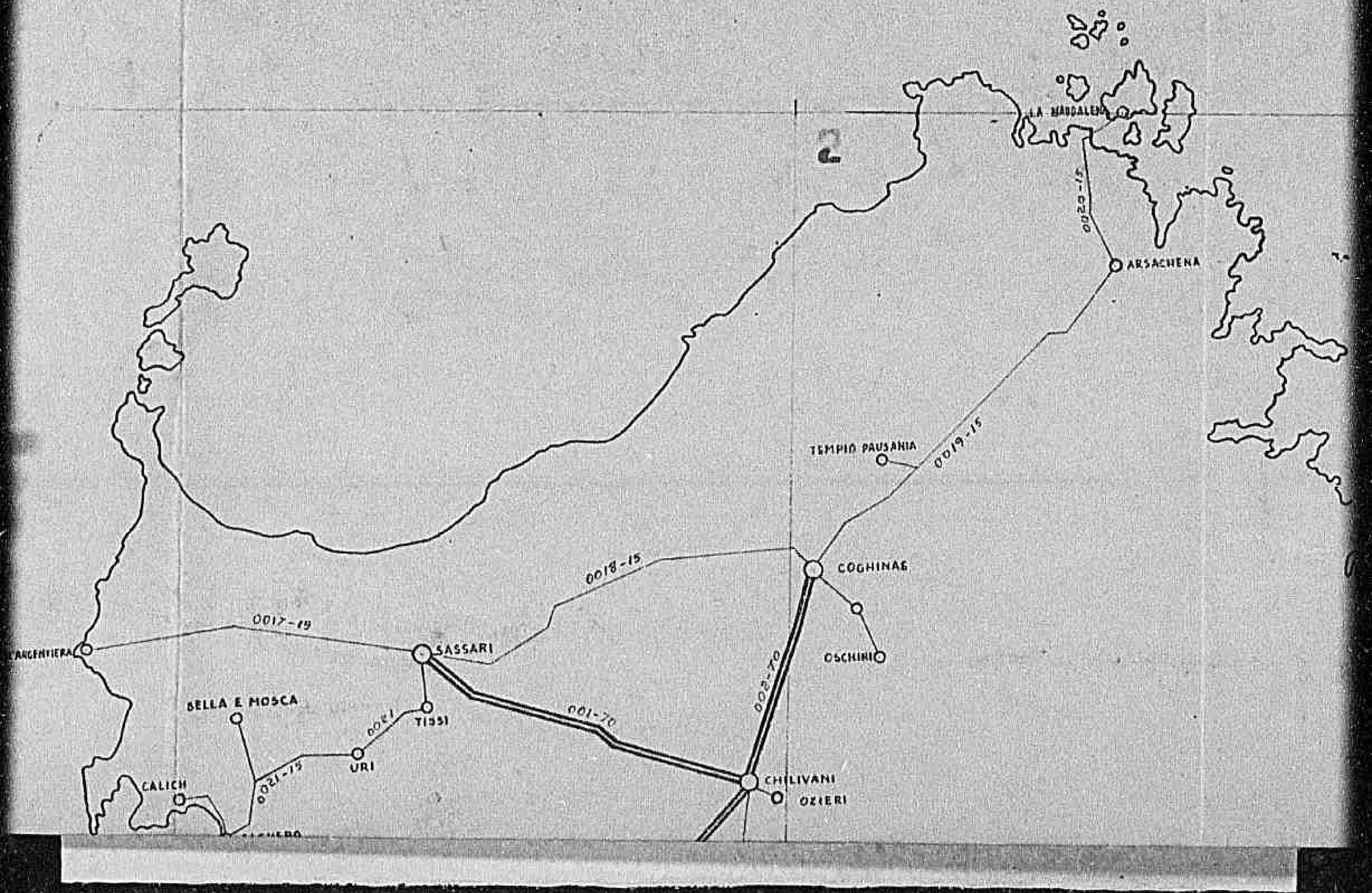
102 - 150 (230)	over 200 KV
1044 - 120	100 to 200 KV
4 - 60 (150)	50 to 100 KV
32 - 50	under 50 KV



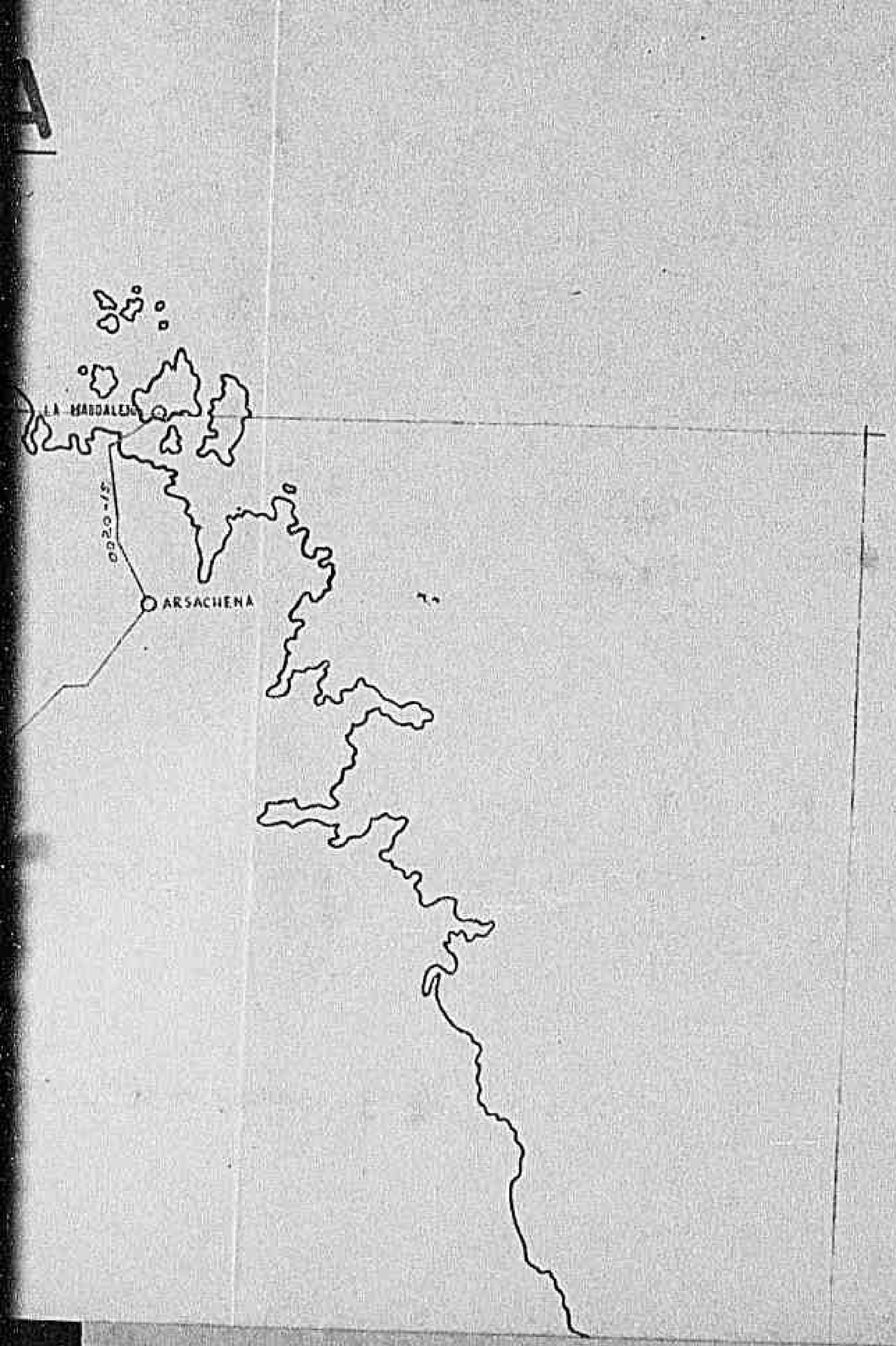
Declassified E.O. 12356 Section 3.3/NND No. 785019

T Nº22
RT 2
PARTS

SARDINIA



Declassified E.O. 12356 Section 3.3/NND No. 785019



Declassified E.O. 12356 Section 3.3/NND No. 785019

SIGNIFICANCE OF NUMBERS OVER LINES

FIRST NUMBER — reference number in files of P.W. & U. Dept. Elec. Div.
SECOND NUMBER — operating voltage in KV
Nº IN PARENTHESIS — design voltage in KV

LINE DESIGN VOLTAGE

102 - 150 (230)	over	200 KV
1044 - 120	100 to	200 KV
4 - 60 (150)	50 to	100 KV
32 - 30	under	50 KV

SUBSTATIONS

○ important & complex SS ○ small SS

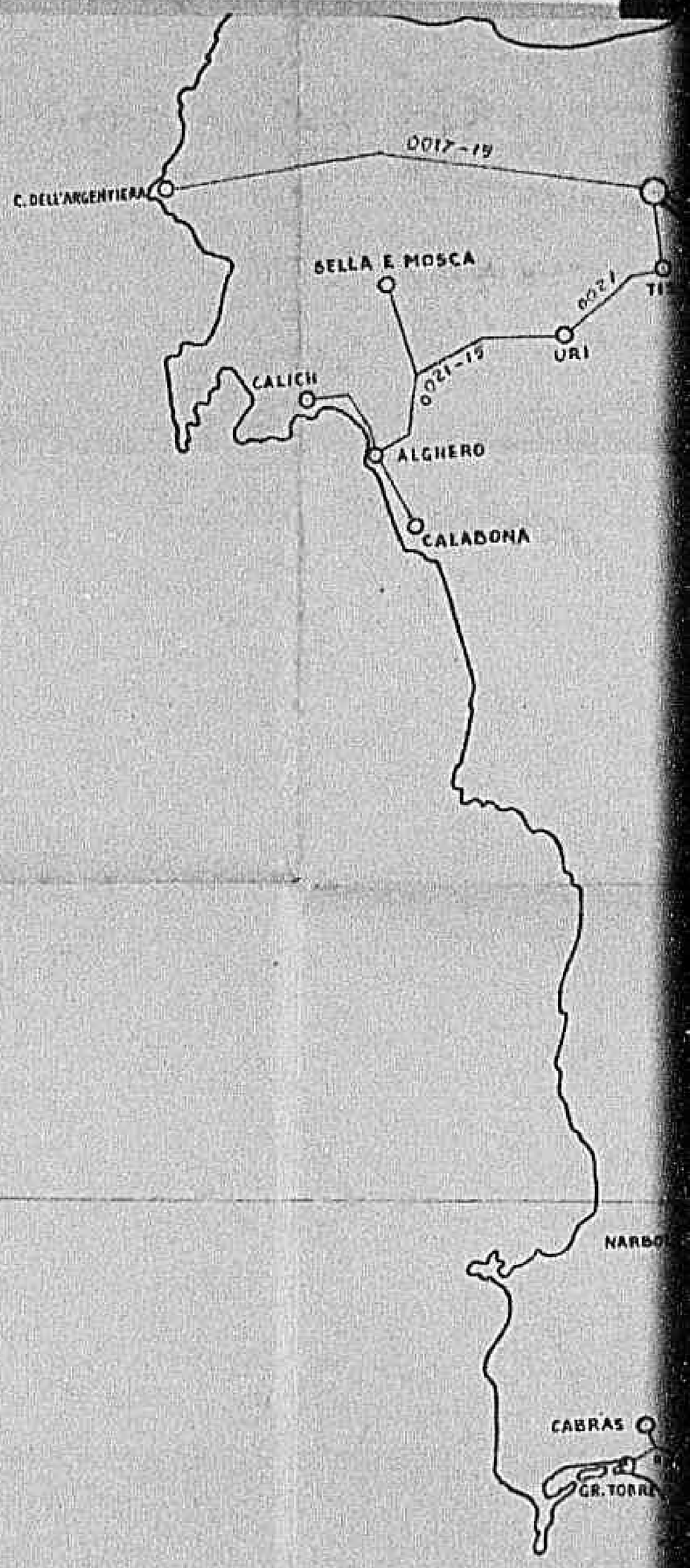
SUBLINED SS belongs to a p. plant or gets power from p. plants

SIGNIFICANCE OF COLORS

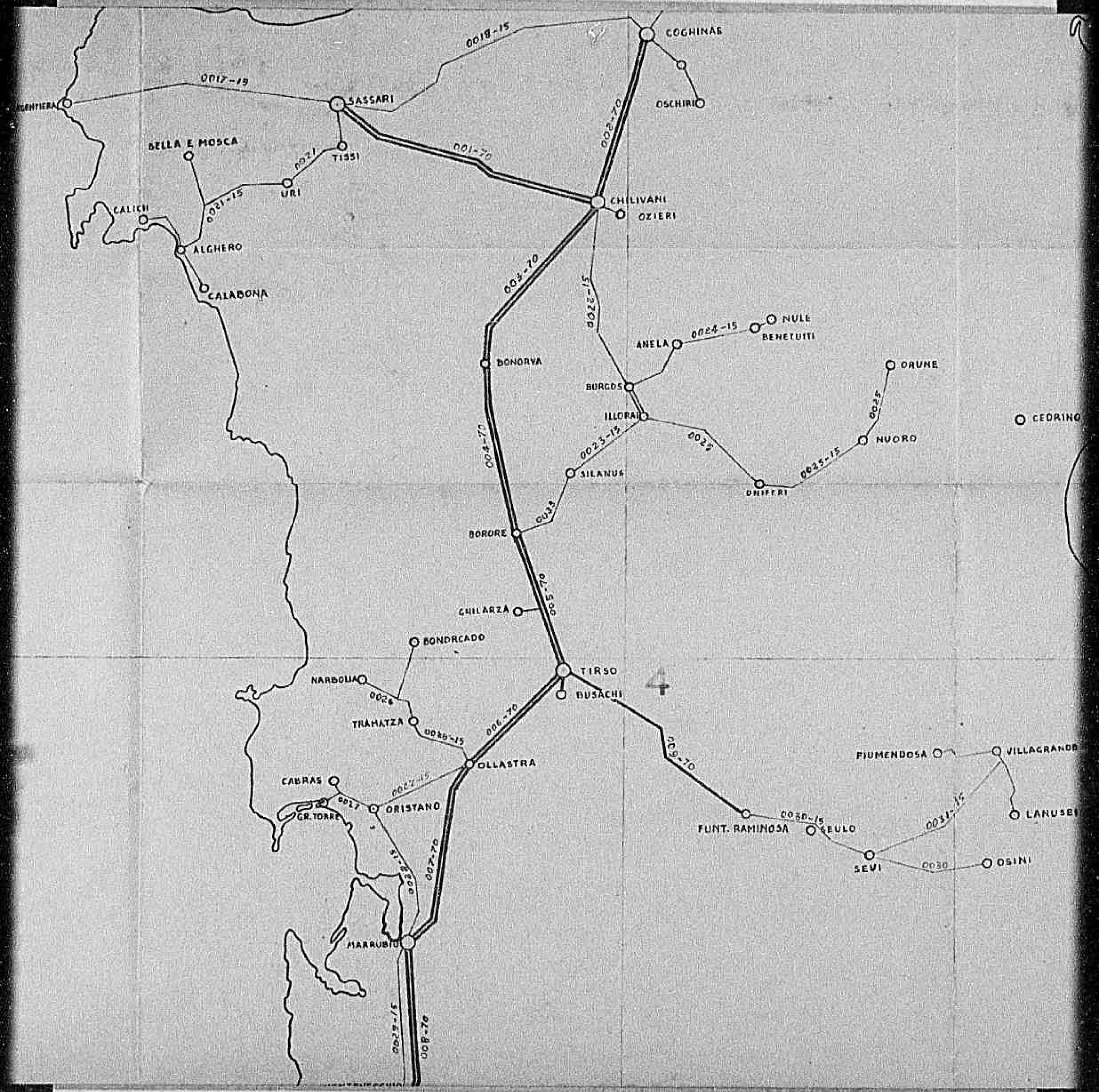
Hot - Operating
Repair
Circles color ⟶ Sub stations conditions
Under lining color ⟶ power plant conditions

SCALE 1:500'000

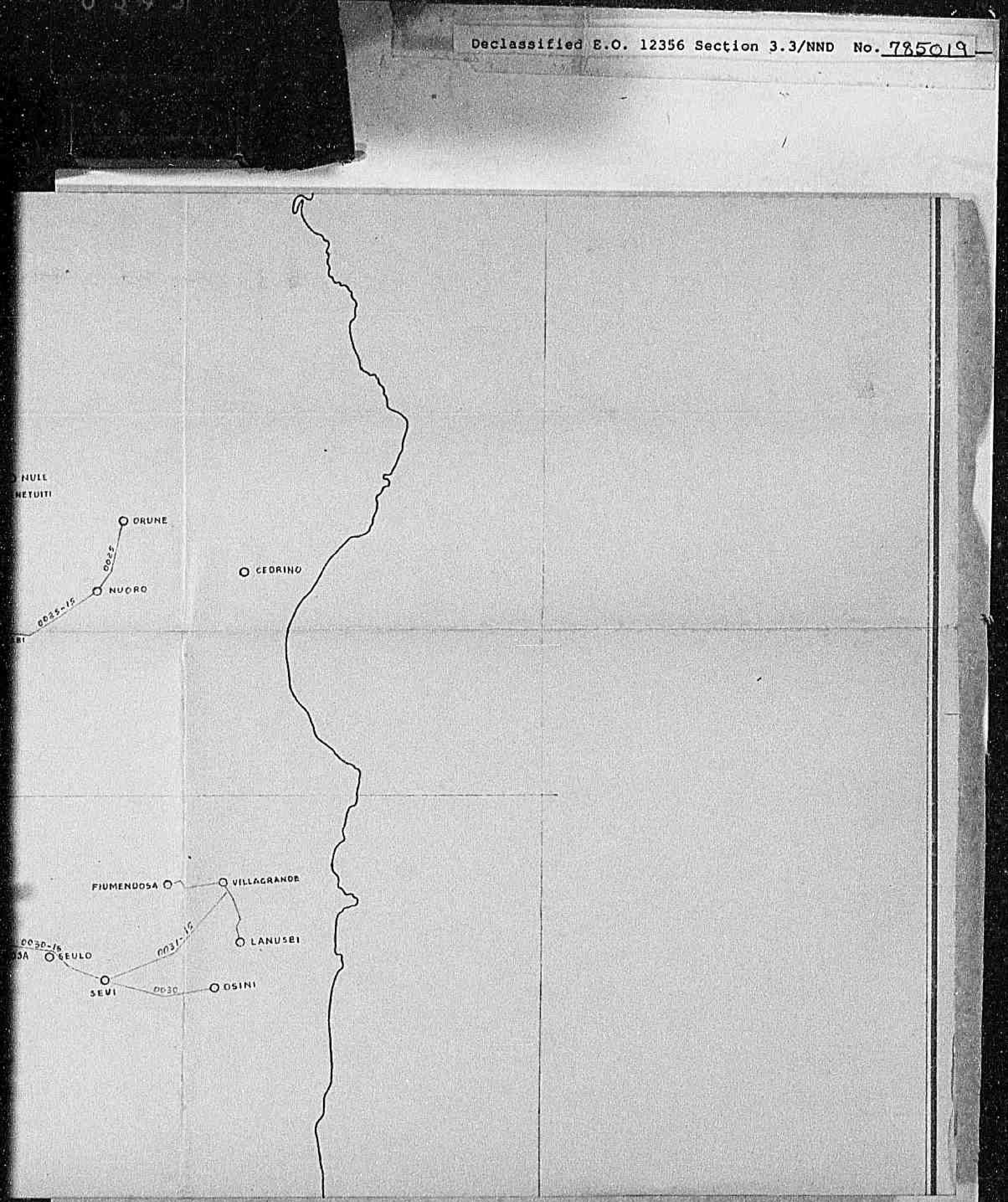
0 5 10 15 20 25 30 35 40 45Km.
0 5 10 15 20 25 30 Miles



Declassified E.O. 12356 Section 3.3/NND No. 785019

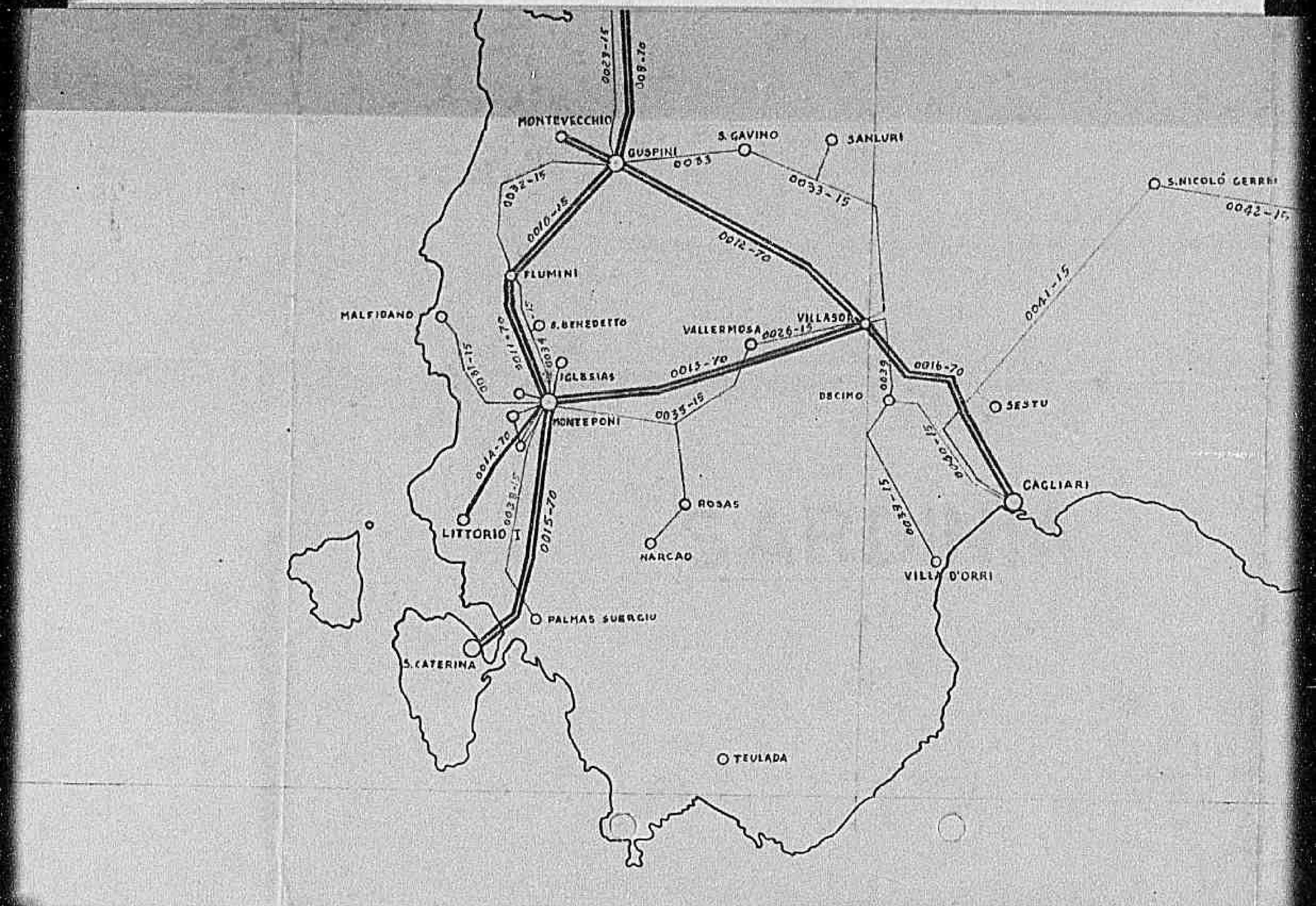


Declassified E.O. 12356 Section 3.3/NND No. 785019



Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019



Declassified E.O. 12356 Section 3.3/NND No. 785019

S.NICOLÒ GERREI

0042-15

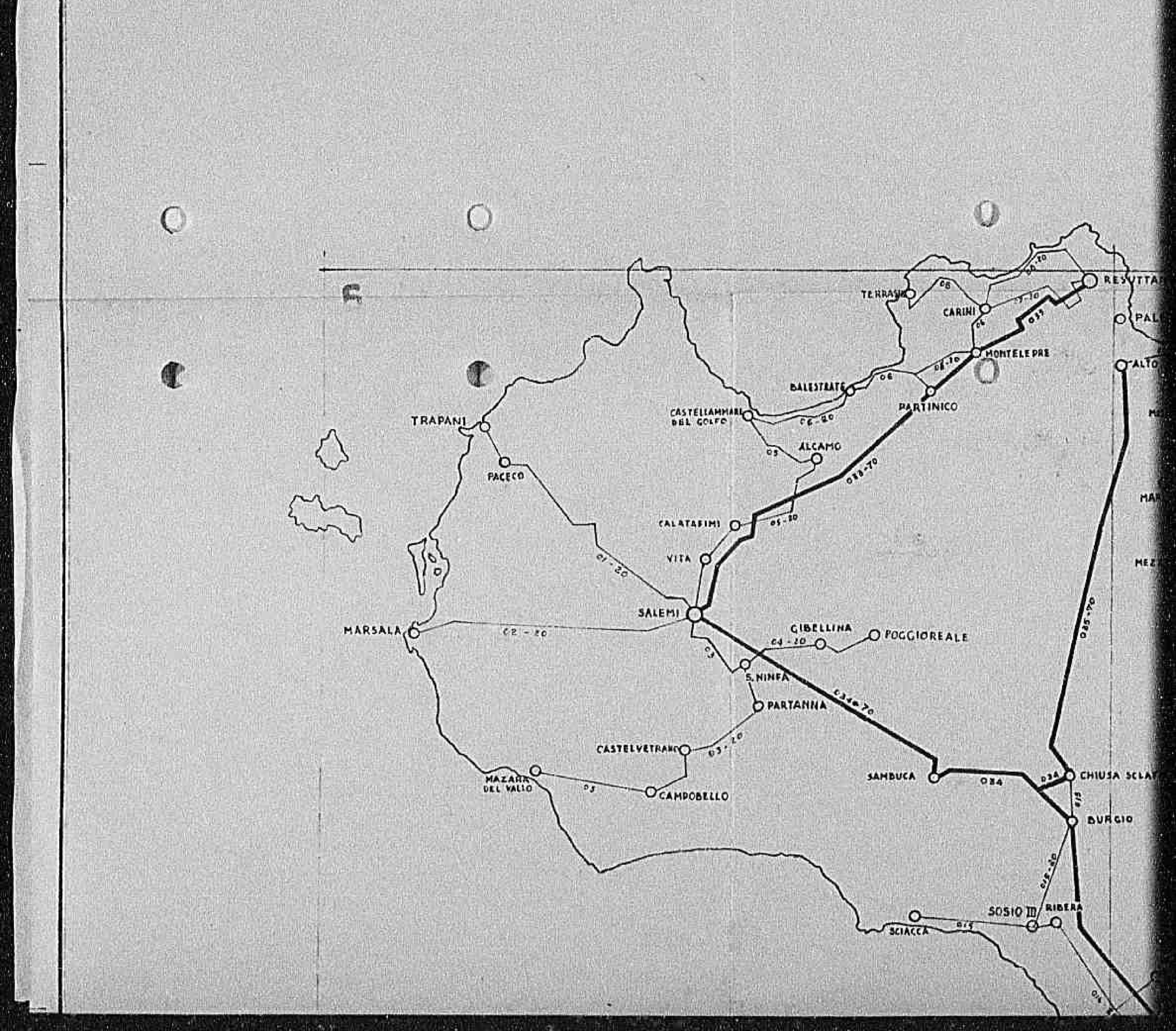
S. VITO

MURAVERA

0041-15

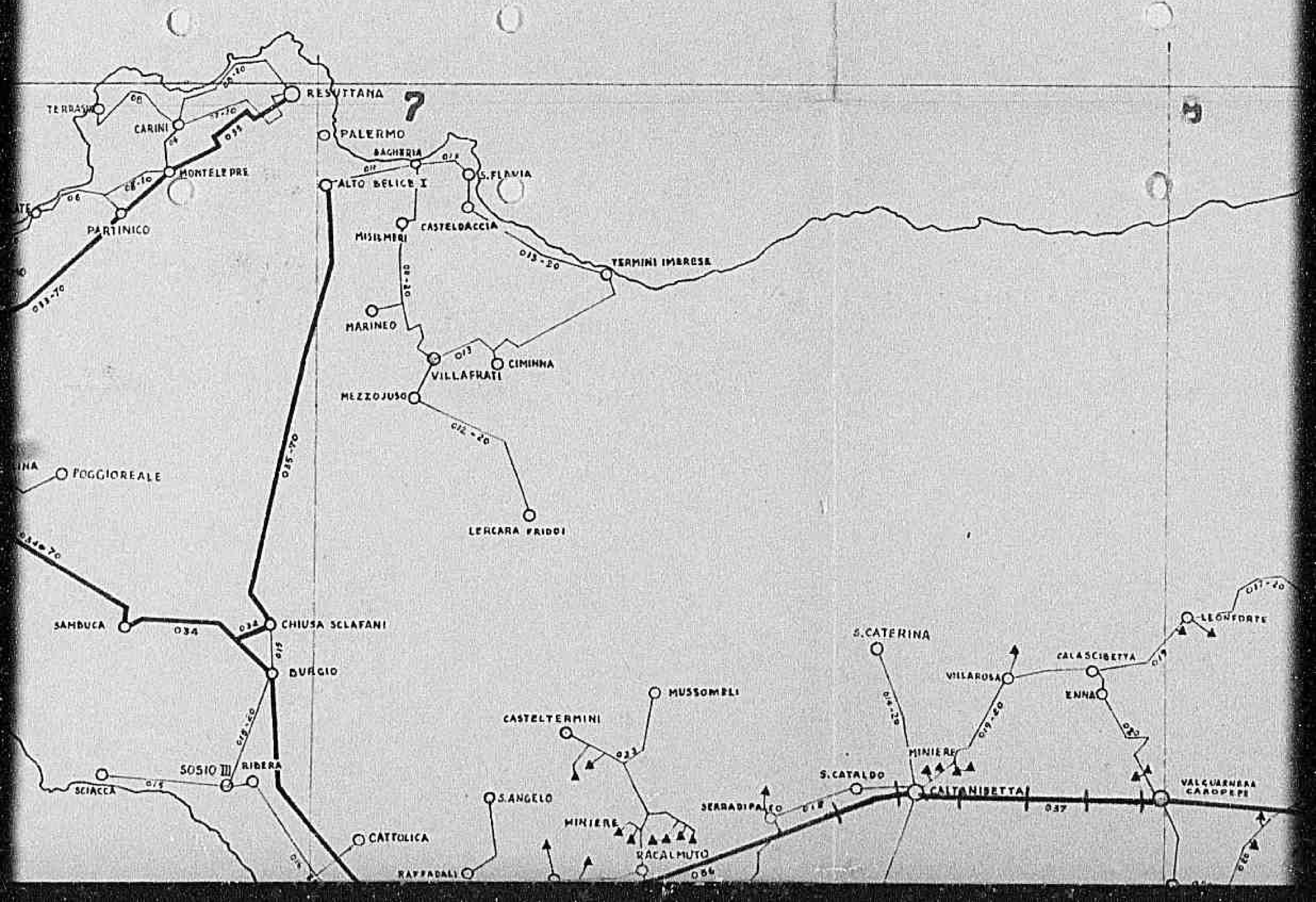
CAGLIARI

Declassified E.O. 12356 Section 3.3/NND No. 785019



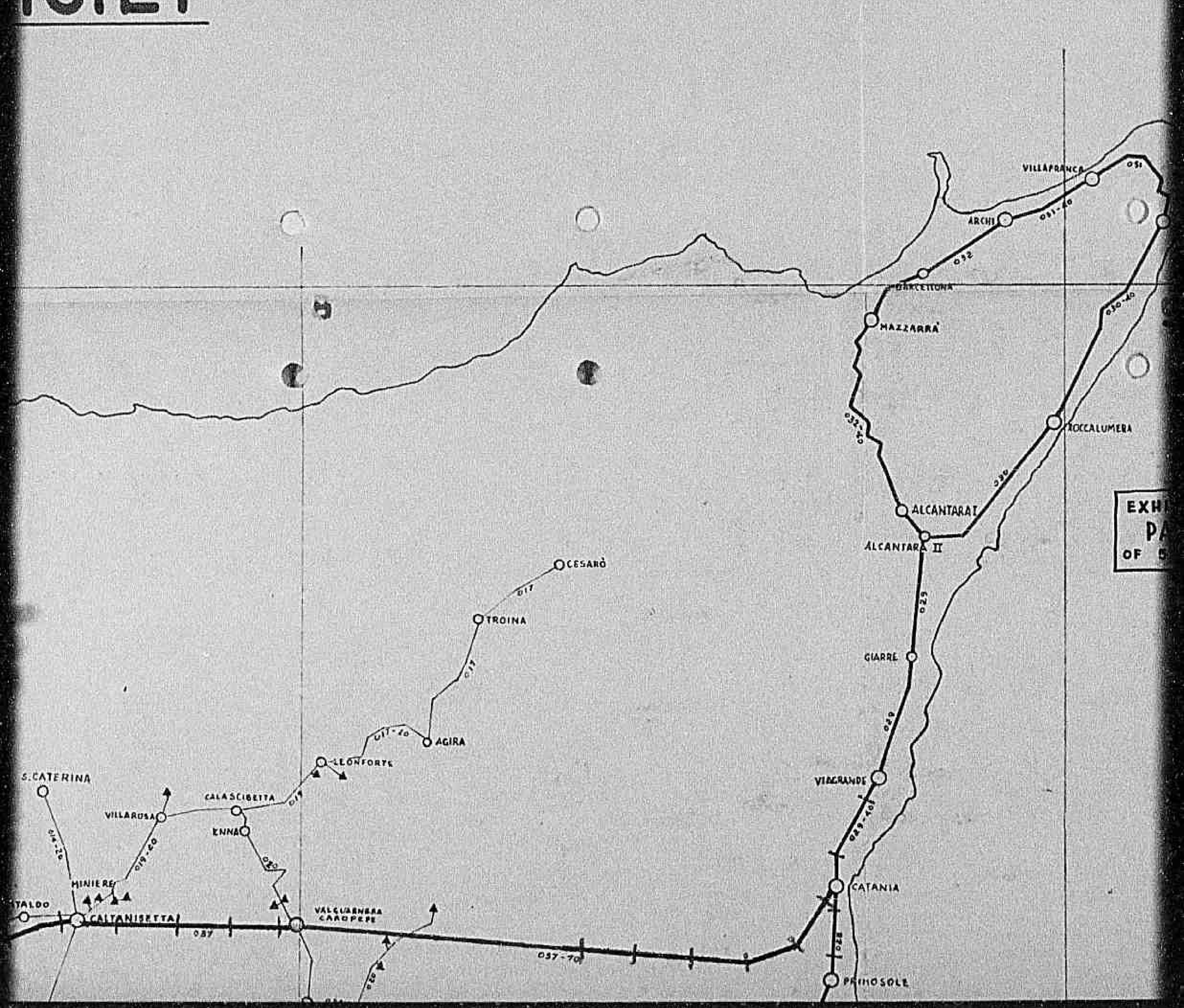
Declassified E.O. 12356 Section 3.3/NND No. 785019

SICILY



Declassified E.O. 12356 Section 3.3/NND No. 785019

ICILY

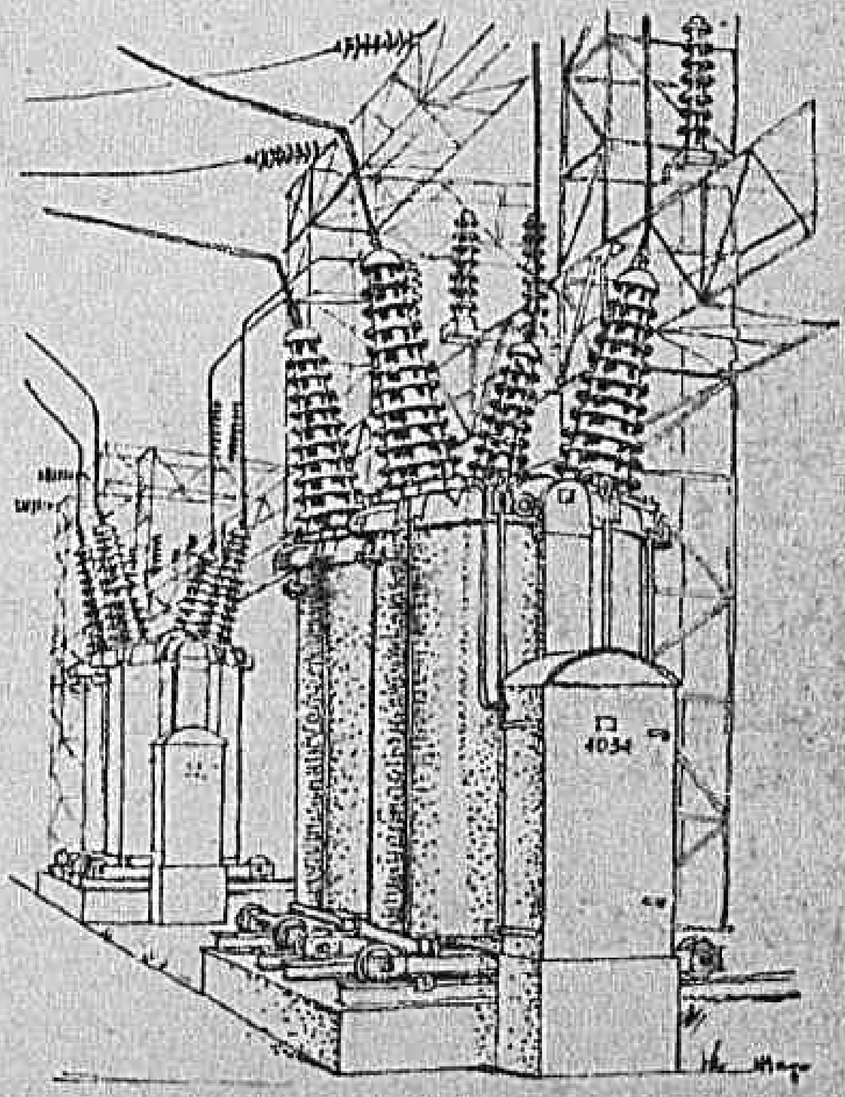


Declassified E.O. 12356 Section 3.3/NND No. 785019

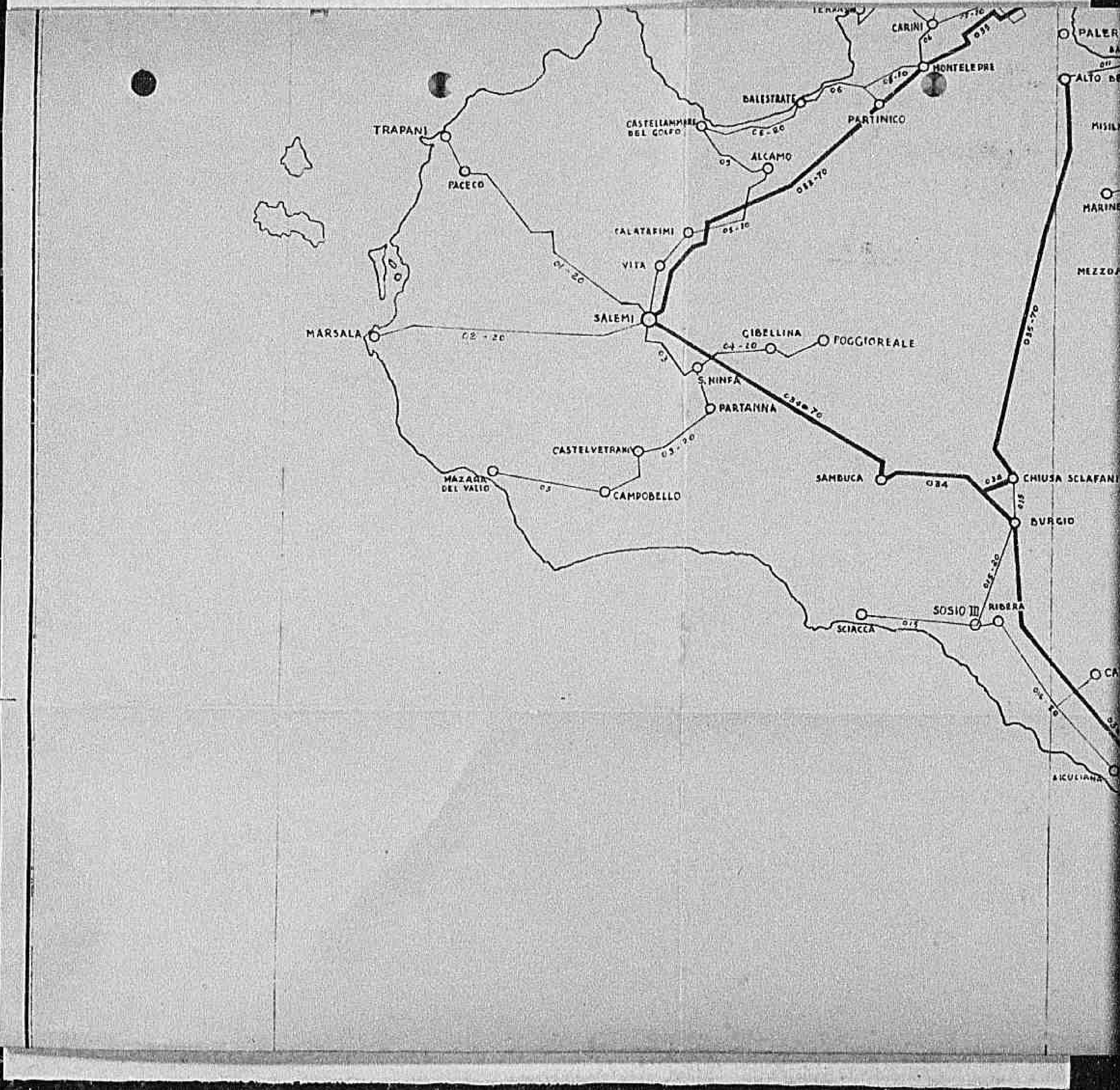
ALLIED COMMISSION
PUBLIC WORKS AND UTILITIES DEPARTMENT
ELECTRICAL DIVISION

ELECTRICITY-ITALY
HIGH VOLTAGE TRANSMISSION LINES

EXHIBIT N°22
PART 3
OF 5 PARTS



Declassified E.O. 12356 Section 3.3/NND No. 785019



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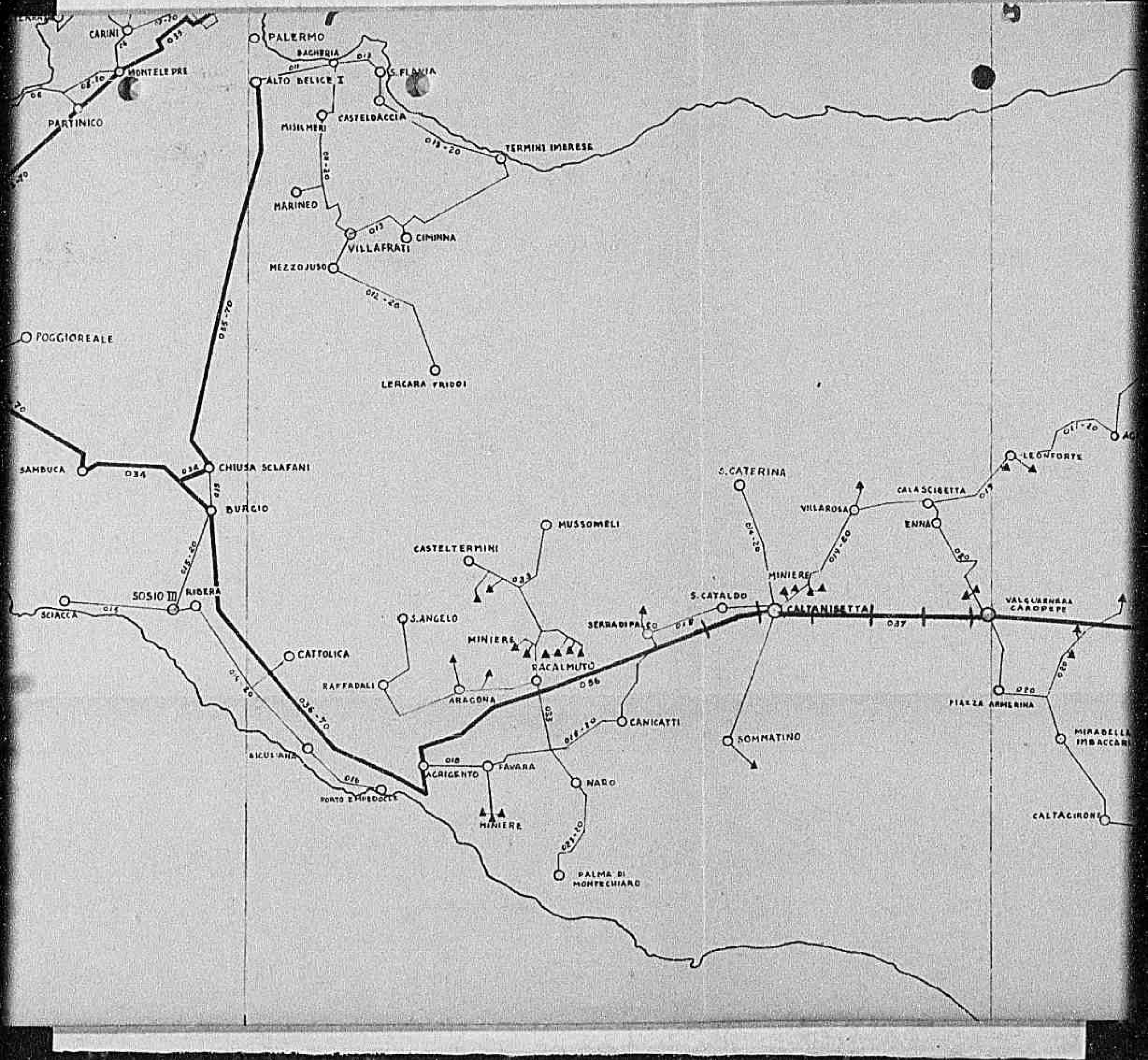


Declassified E.O. 12356 Section 3.3/NND No. 785019

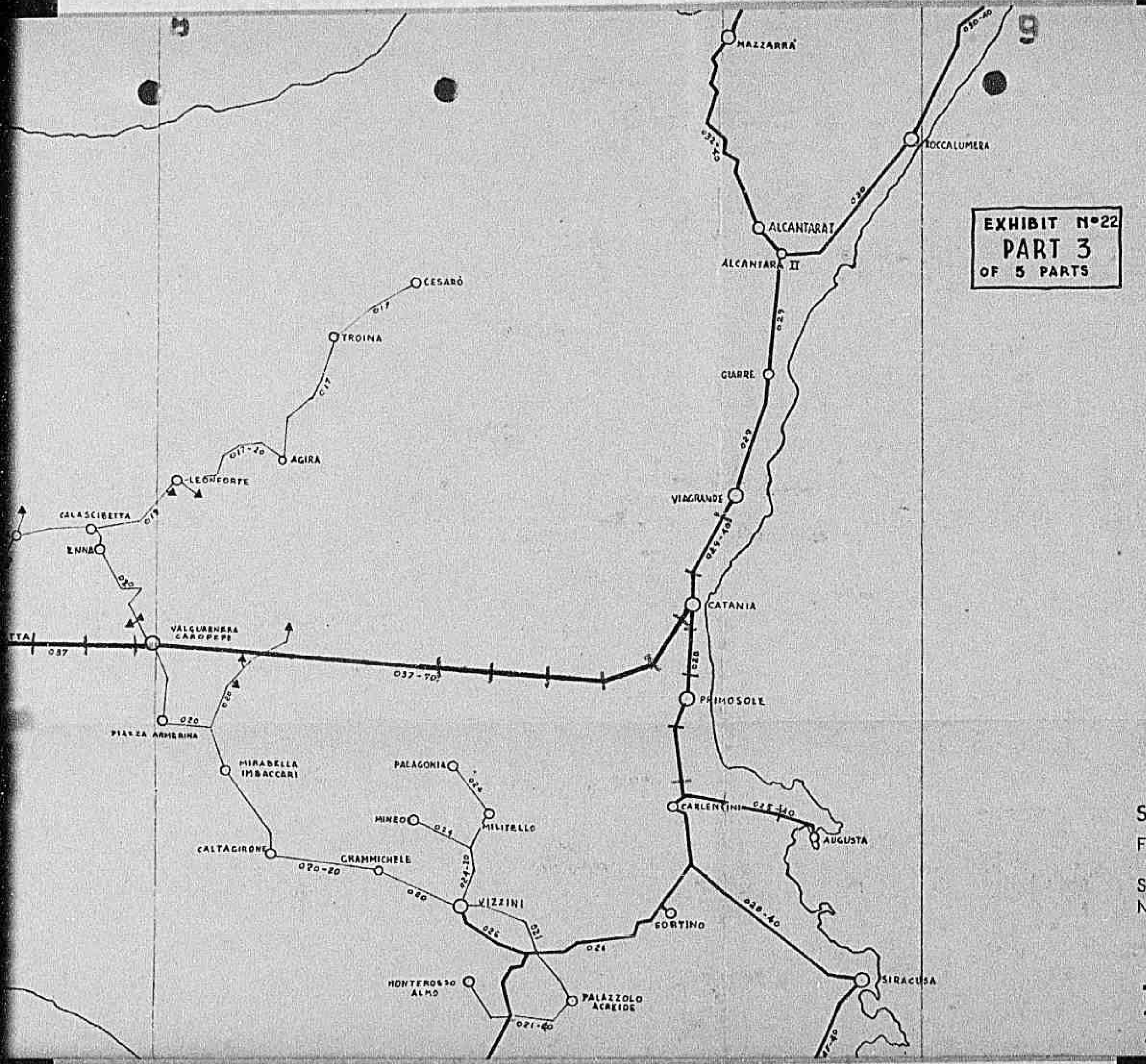
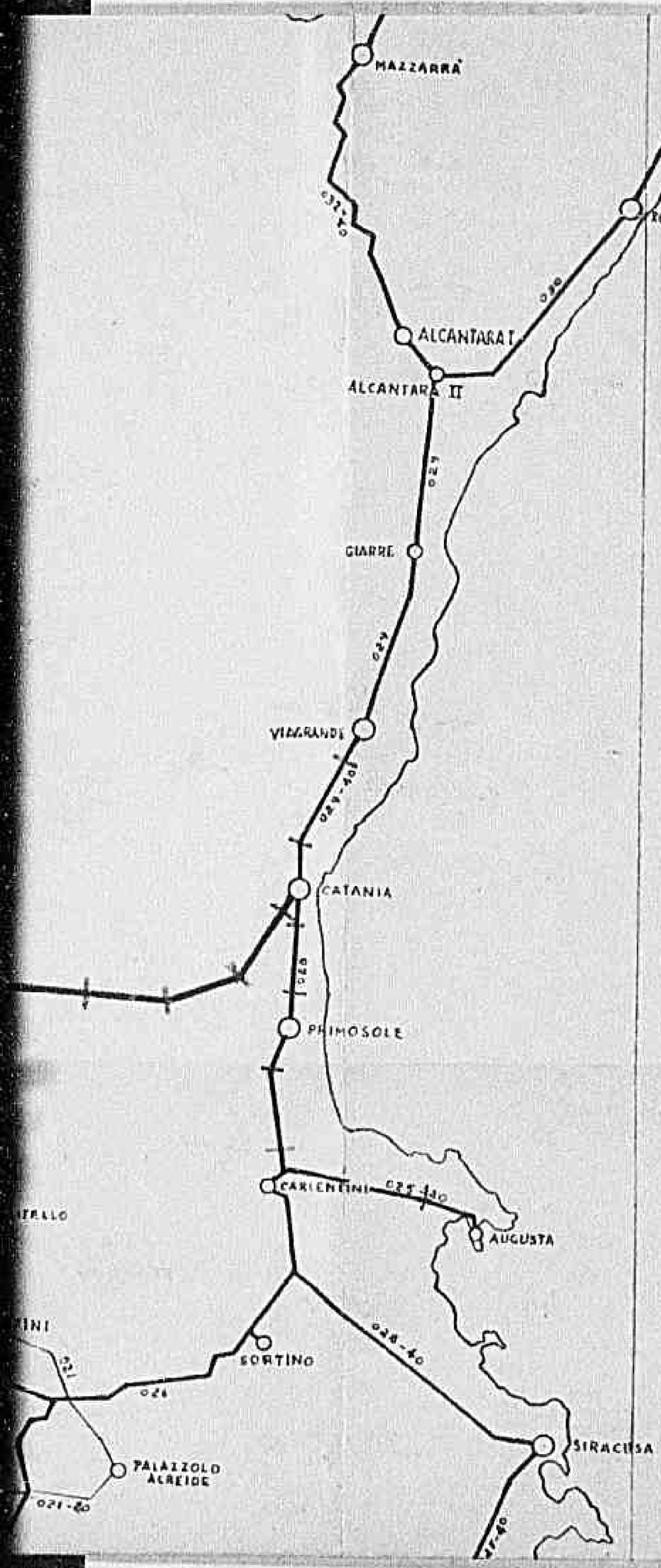


EXHIBIT N°22
PART 3
OF 5 PARTS

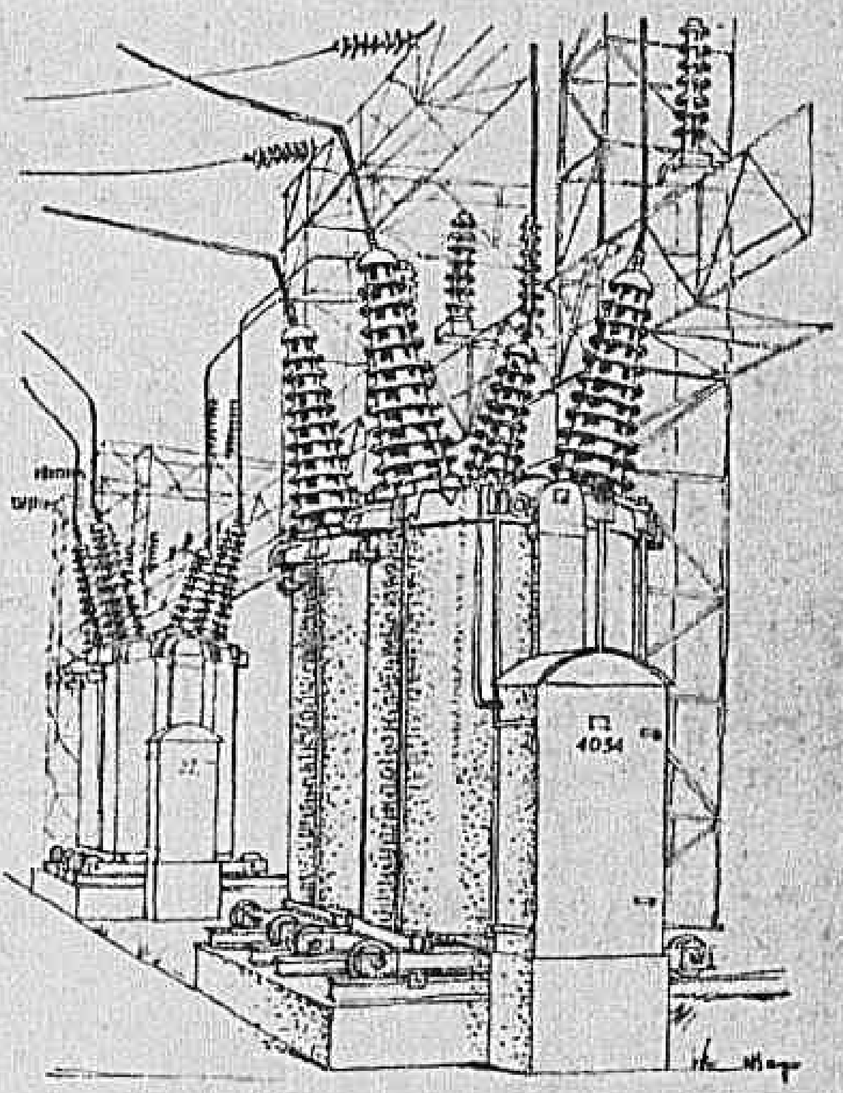
Declassified E.O. 12356 Section 3.3/NND No. 785019



ALLIED COMMISSION
PUBLIC WORKS AND UTILITIES DEPARTMENT
ELECTRICAL DIVISION

ELECTRICITY-ITALY
HIGH VOLTAGE TRANSMISSION LINES

EXHIBIT Nº22
PART 3
OF 5 PARTS



LEGEND

SIGNIFICANCE OF NUMBERS OVER LINES

FIRST NUMBER	reference number in files of P.W. & U. Dept. Elec. Div.
SECOND NUMBER	operating voltage in KV
Nº IN PARENTHESIS	design voltage in KV

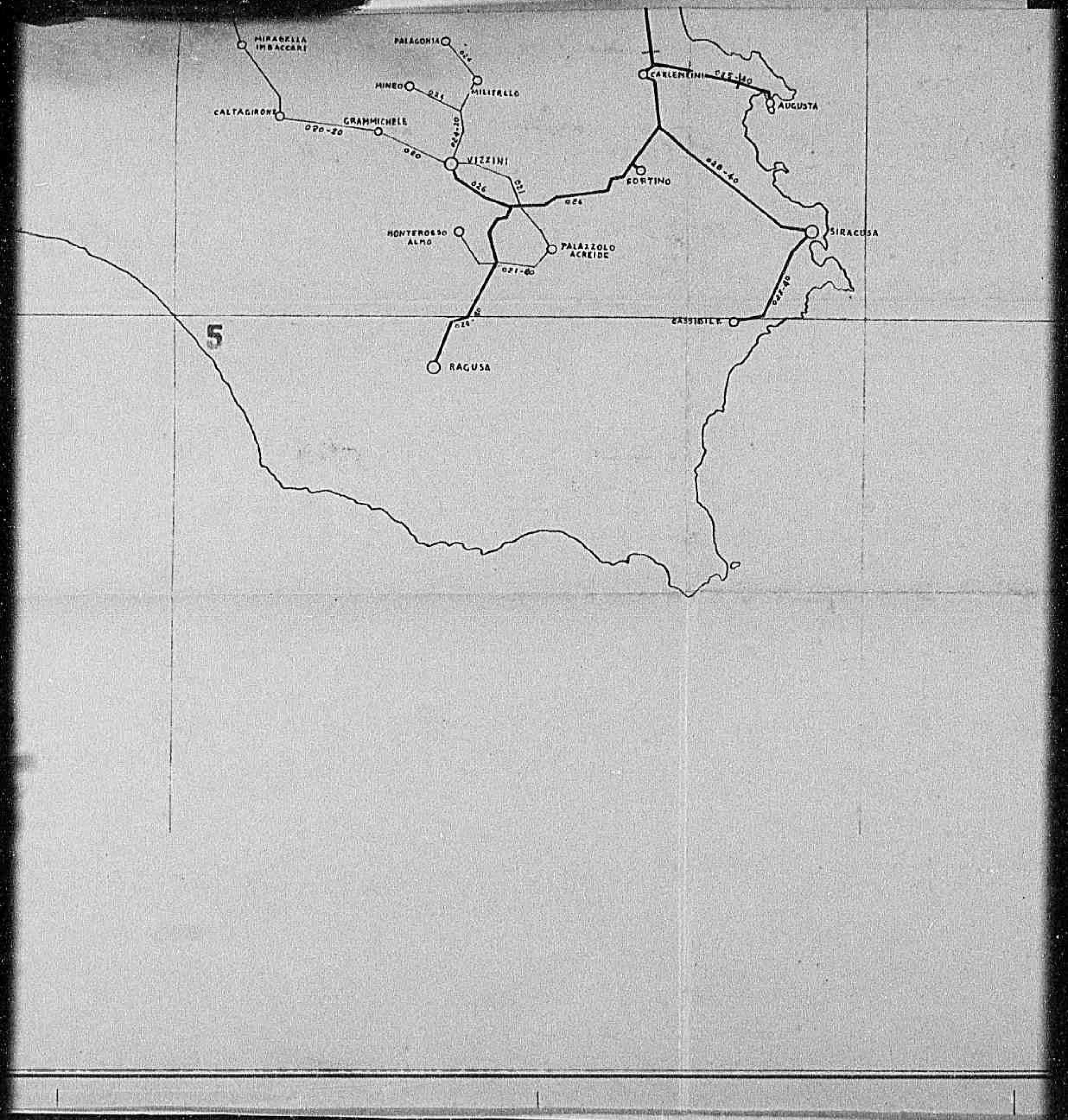
LINE DESIGN VOLTAGE

102 - 150 (230)	over 200 KV
1044 - 120	50 to 200 KV
4 - 60 (150)	30 to 50 KV

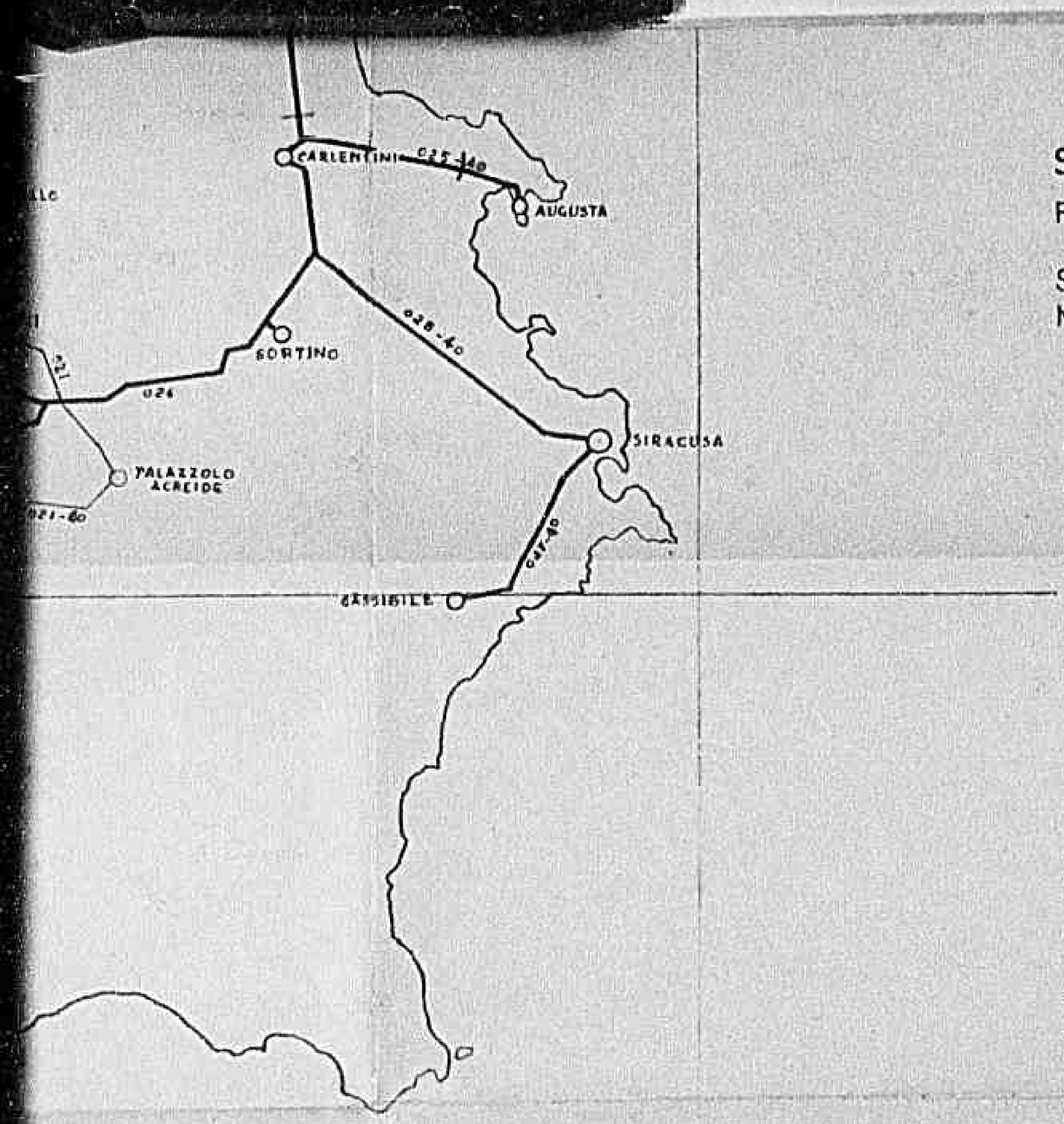
Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019

Declassified E.O. 12356 Section 3.3/NND No. 785019



Declassified E.O. 12356 Section 3.3/NND No. 785019



LEGEND

SIGNIFICANCE OF NUMBERS OVER LINES

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SECOND NUMBER — operating voltage in KV

Nº IN PARENTHESIS — design voltage in KV

LINE DESIGN VOLTAGE

102 - 150 (230)	over 200 KV
1044 - 120	50 to 200 KV
4 - 60 (150)	30 to 50 KV
32 - 20	under 30 KV

SUBSTATIONS

⊙ important & complex SS ○ small SS

▲▲▲ sulphur mine area

SUBLINED SS belongs to a p. plant or gets power from p. plants

SIGNIFICANCE OF COLORS

Hot - Operating

Repair

Circles color ⟶ Sub stations conditions

Under lining color ⟶ power plant conditions

SCALE 1:500'000

0 5 10 15 20 25 30 35 40 48Km.

0 5 10 15 20 25 30 Miles

Declassified E.O. 12356 Section 3.3/NND No. 785019

CHARTS FILMED ON

35 MM

EXHIBIT Nº 23
IN 4 PARTS

POWER PLANT MAPS

CONTENTS:

Sardinia map. part 1

Sicily map. part 2

Southern & Central Italy map. part 3

Declassified E.O. 12356 Section 3.3/NND No. 785019

POWER PLANT MAPS

CONTENTS:

Sardinia map. part 1

Sicily map. part 2

Southern & Central Italy map. part 3

Northern Italy map. part 4

4418

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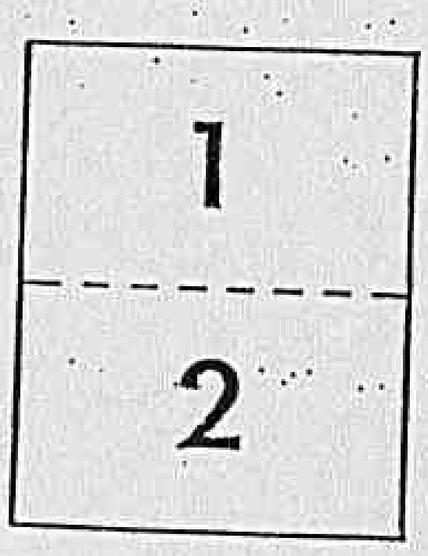
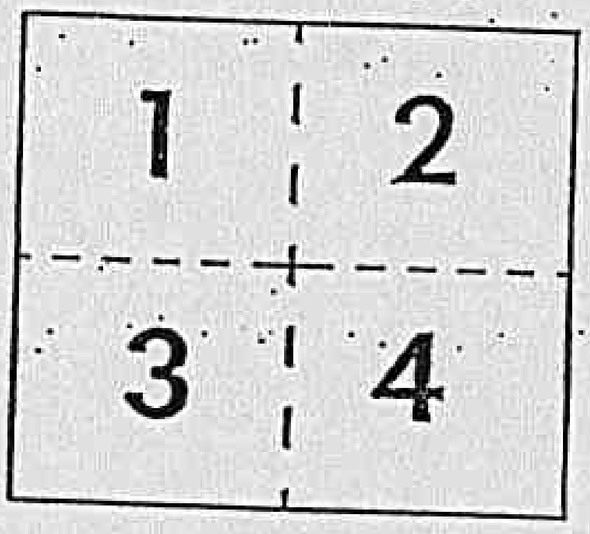
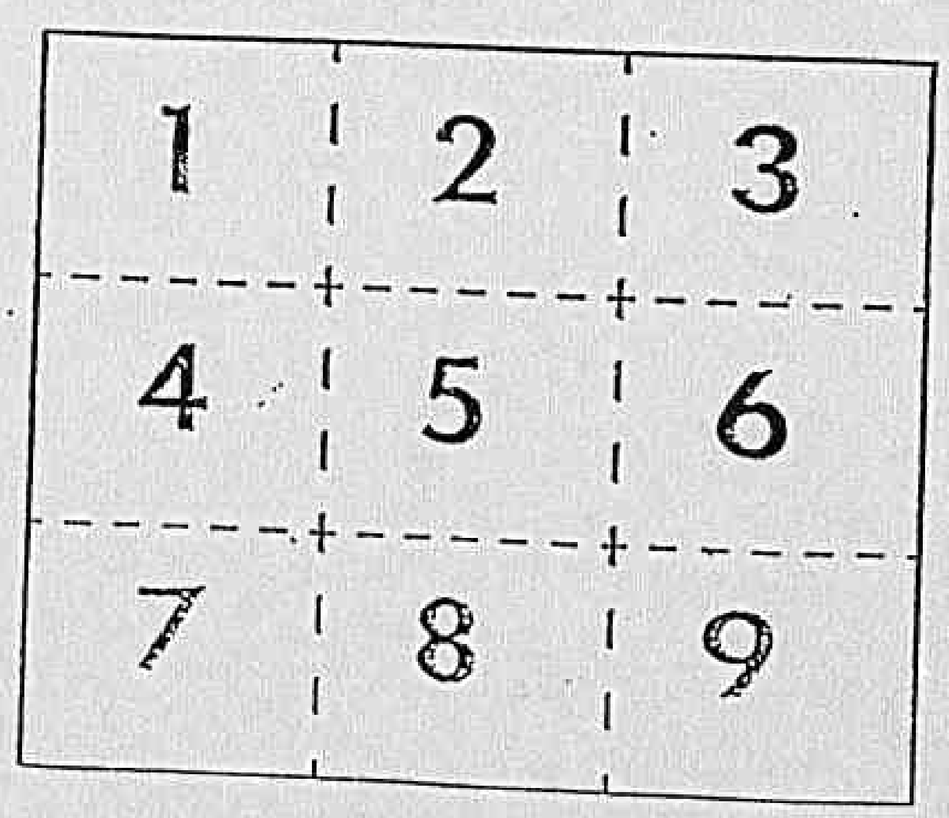
Declassified E.O. 12356 Section 3.3/NND No. 785019

MAPS AND CHARTS TOO LARGE TO FILM ON ONE EXPOSURE ARE FILMED CLOCKWISE BEGINNING IN THE UPPER LEFT CORNER, LEFT TO RIGHT, AND TOP TO BOTTOM.

SEE DIAGRAMS BELOW.







Declassified E.O. 12356 Section 3.3/NND No. 785019

ALLIED COMMISSION

PUBLIC WORKS AND UTILITIES DEPARTMENT

ELECTRICAL DIVISION

ELECTRICITY-ITALY

POWER PLANTS

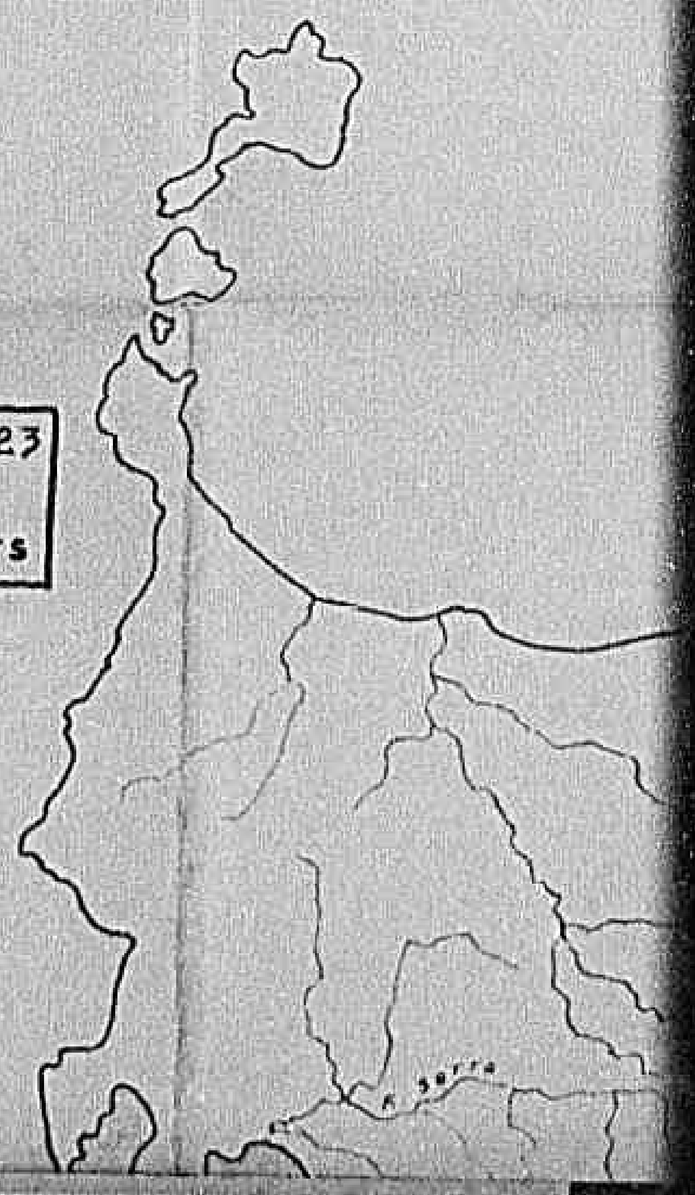
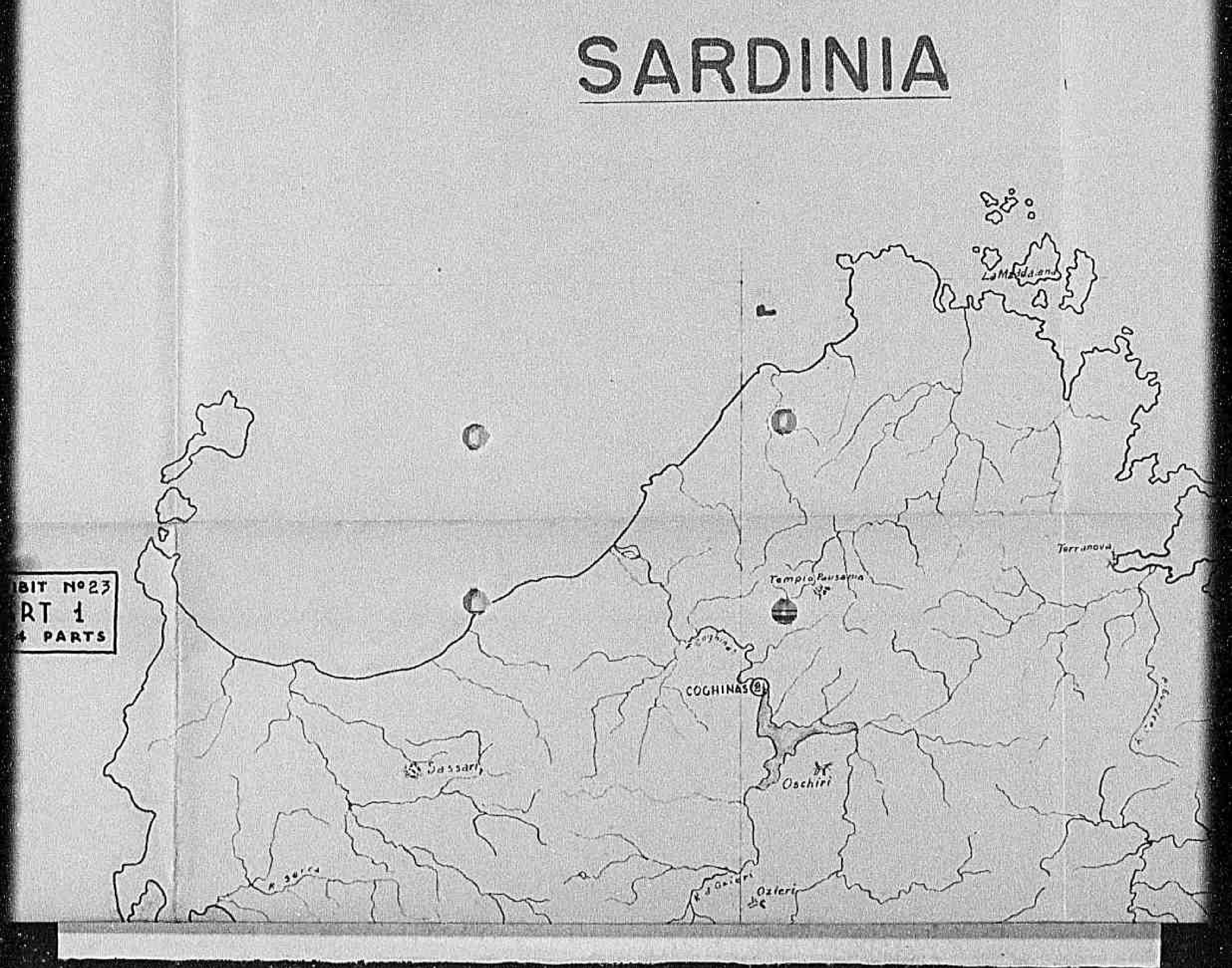


EXHIBIT No 23
PART 1
OF 4 PARTS

Declassified E.O. 12356 Section 3.3/NND No. 785019

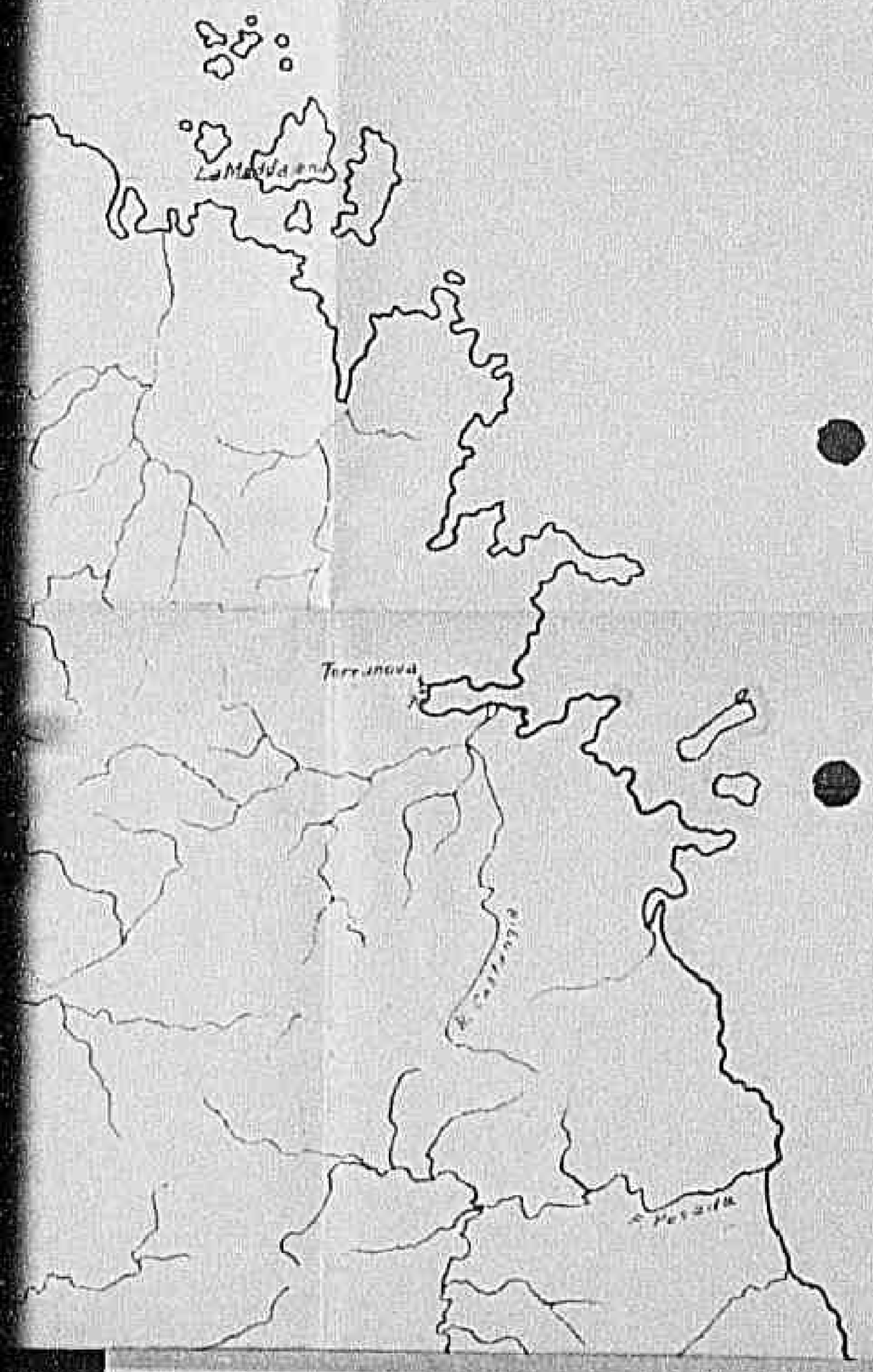
SARDINIA



IBIT No 23
RT 1
4 PARTS

Declassified E.O. 12356 Section 3.3/NND No. 785019

A



Declassified E.O. 12356 Section 3.3/NND No. 785019

○ 10.000 - 100.000 KW. □

○ 1.000 - 10.000 KW. □

○ 300 - 1.000 KW. □

○ LESS THAN 300 KW. ▫

Installed generating capacity for example:

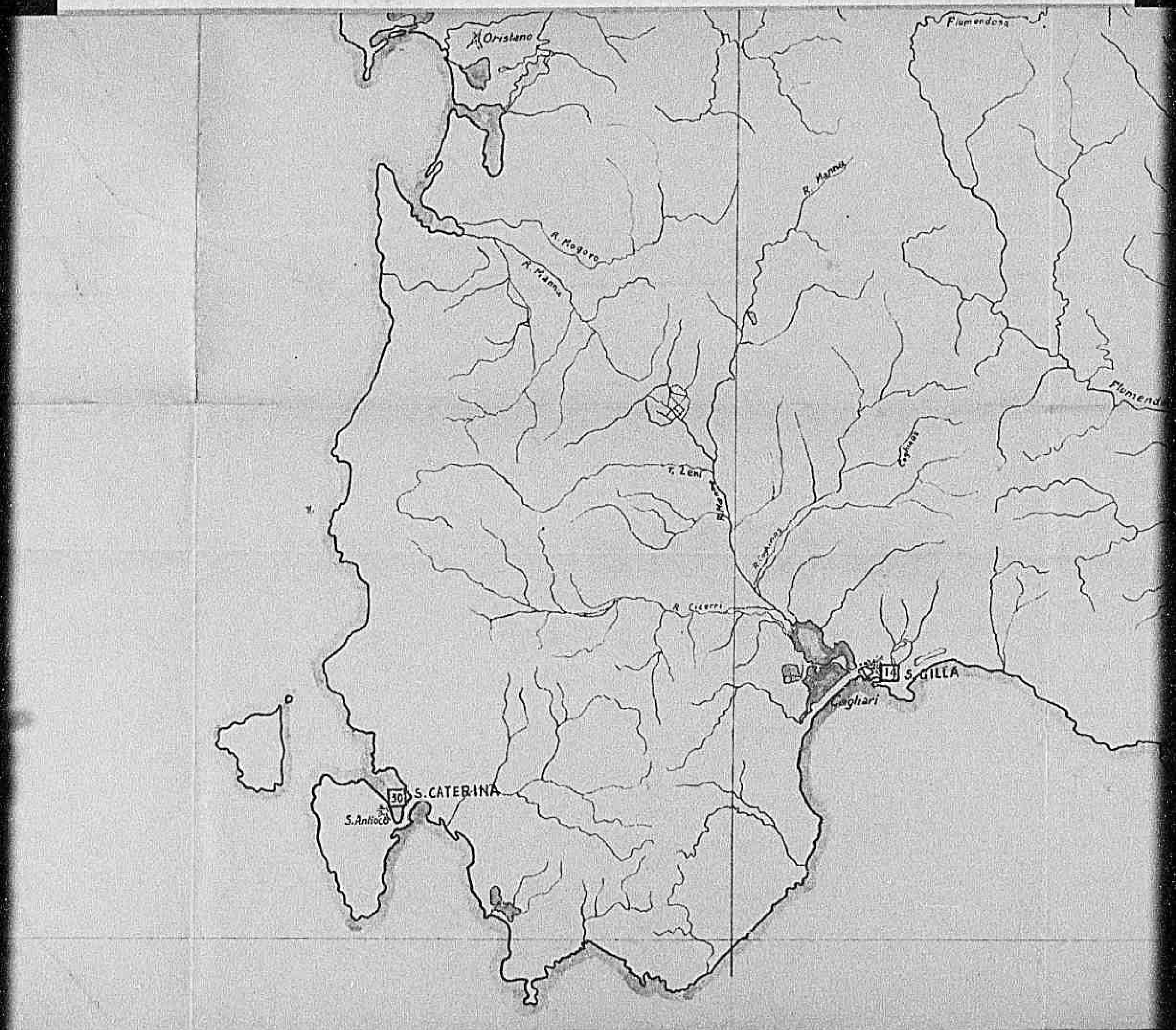
② 2.000 KW. to 2.999 KW.

⑭ 14.000 KW. to 14.999 KW.

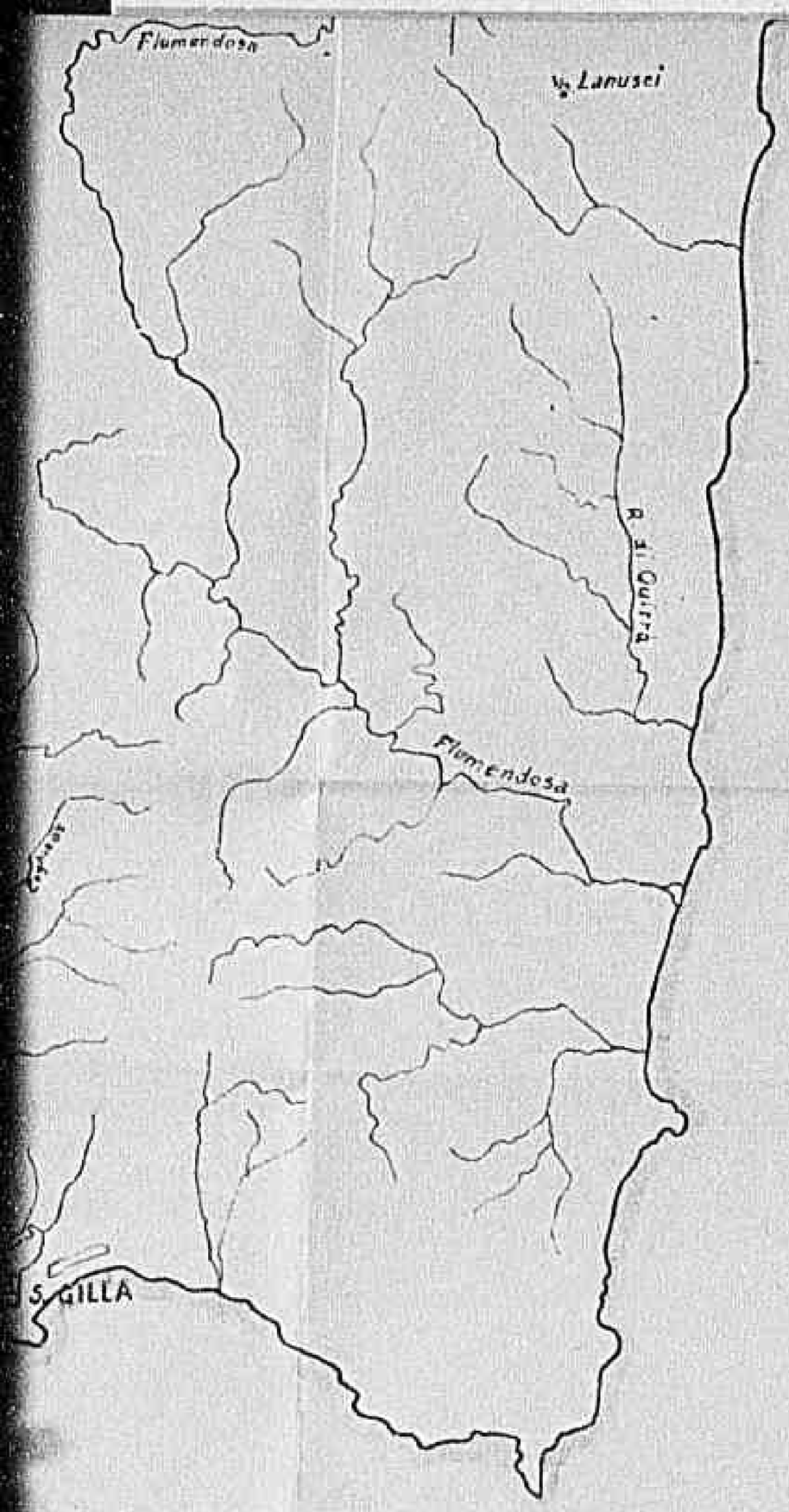
⑮ 115.000 KW. to 115.999 KW.

SCALE 1:500.000

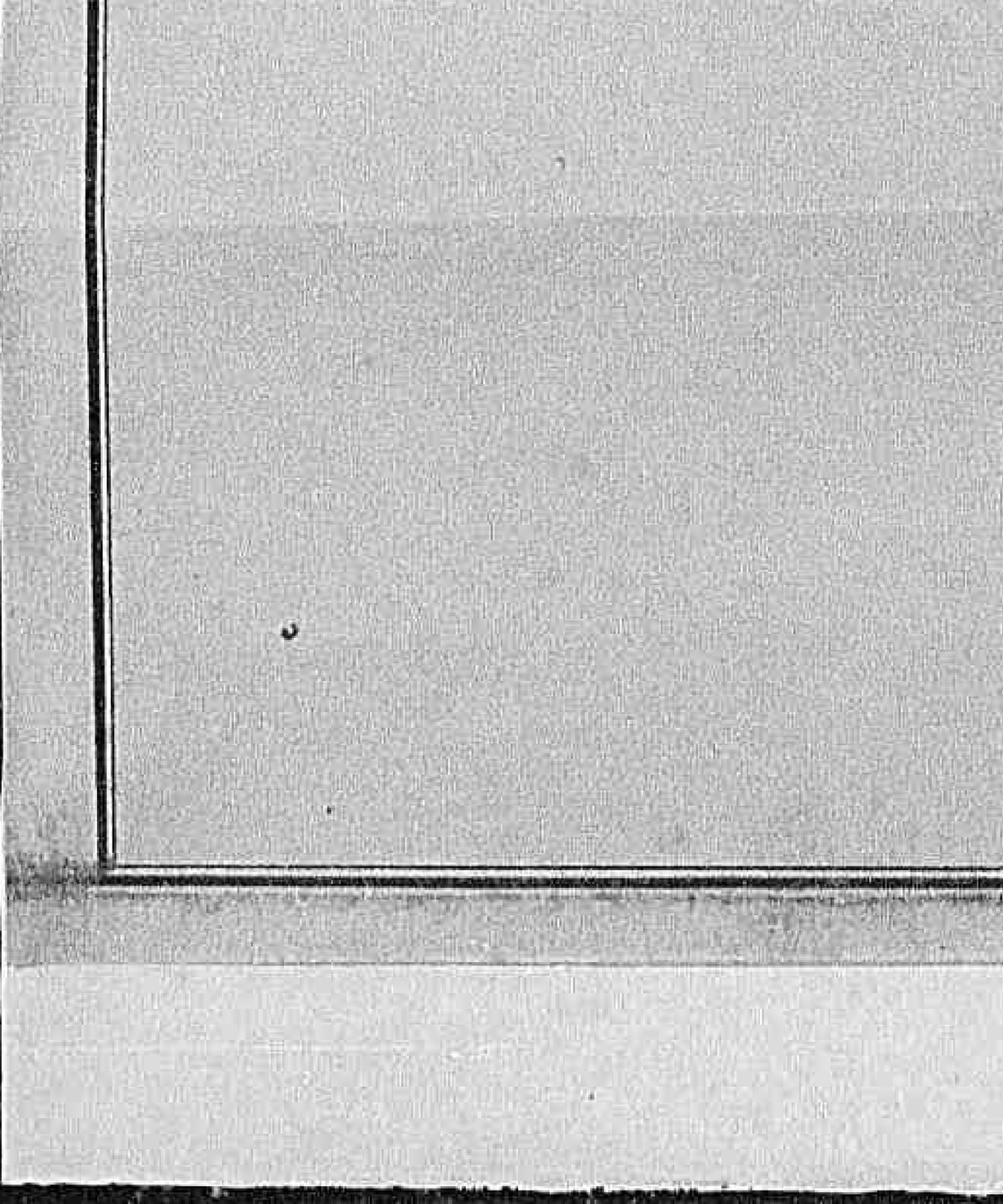
Declassified E.O. 12356 Section 3.3/NND No. 785019



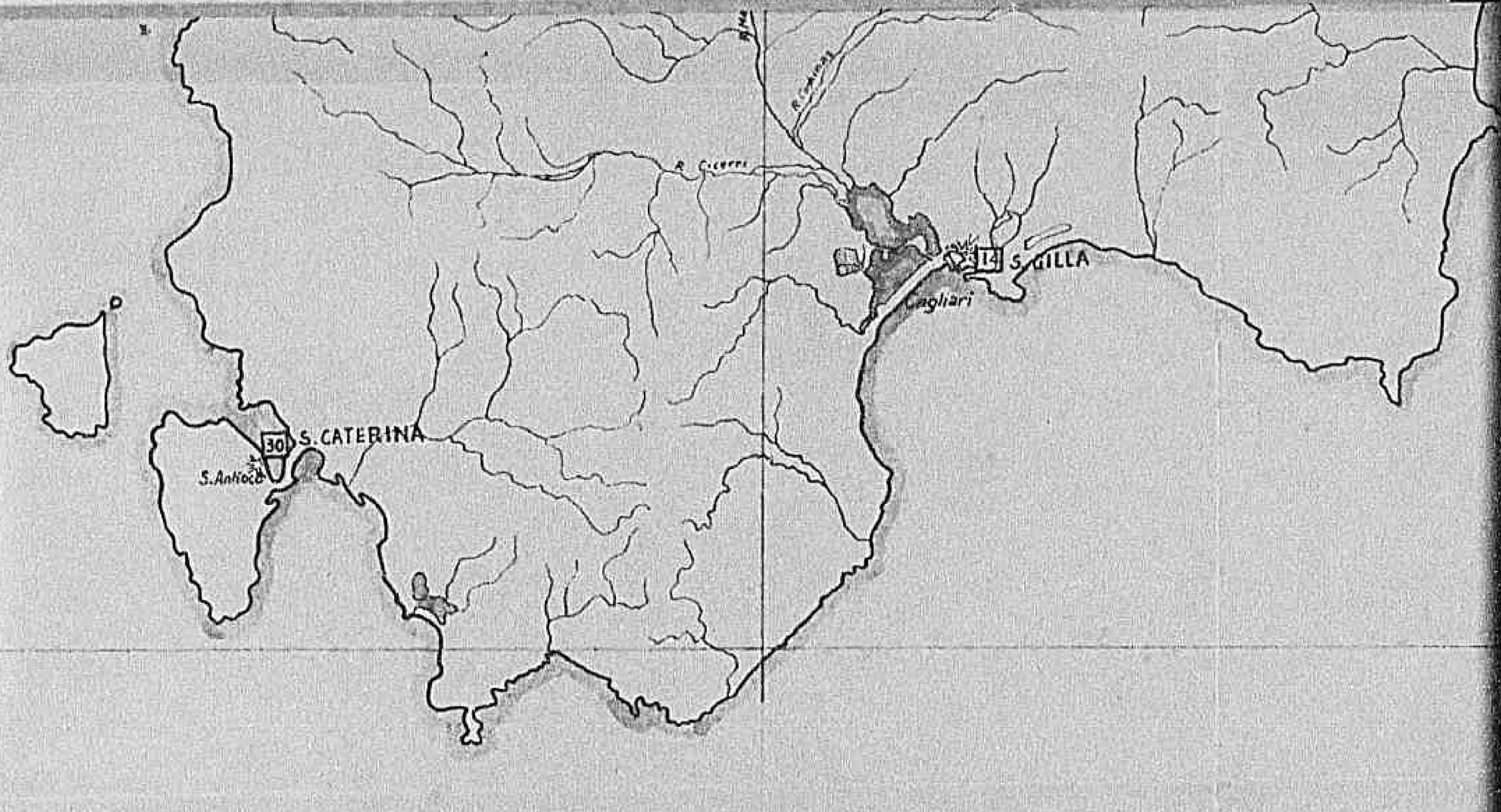
Declassified E.O. 12356 Section 3.3/NND No. 785019



Declassified E.O. 12356 Section 3.3/NND No. 785019



Declassified E.O. 12356 Section 3.3/NND No. 785019



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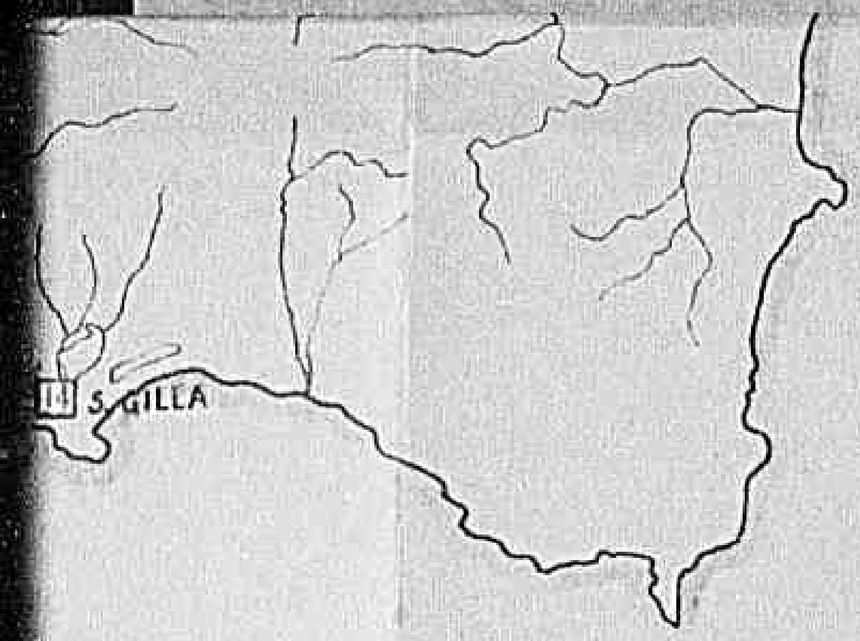

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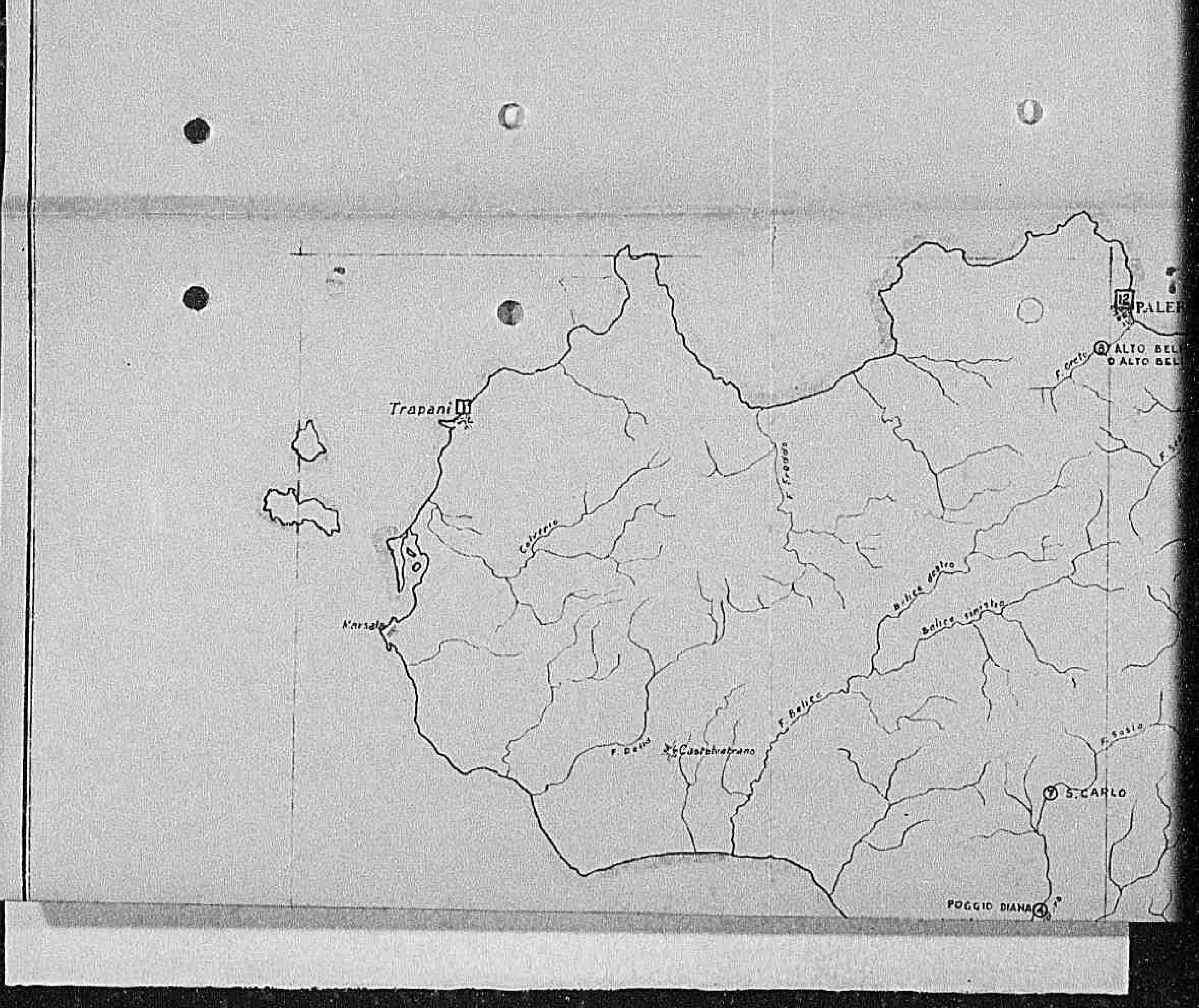
Trapani
Marsala
Calatafimi
Salemi
Gibellina
Partanna
Poggioreale
Salaparuta
Castelvetrano
Selinunte
Menfi
Sciacca
Caltabellotta
Ribera
Cianciana
Bivona
Alessandria della Rocca
Cattolica Eraclea
Siculiana
Montallegro
Cianciana
Burgio
Calamonte
Lucca Sicula
Bivona
Caltabellotta
Sciacca
Menfi
Partanna
Salaparuta
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Gibellina
Salemi
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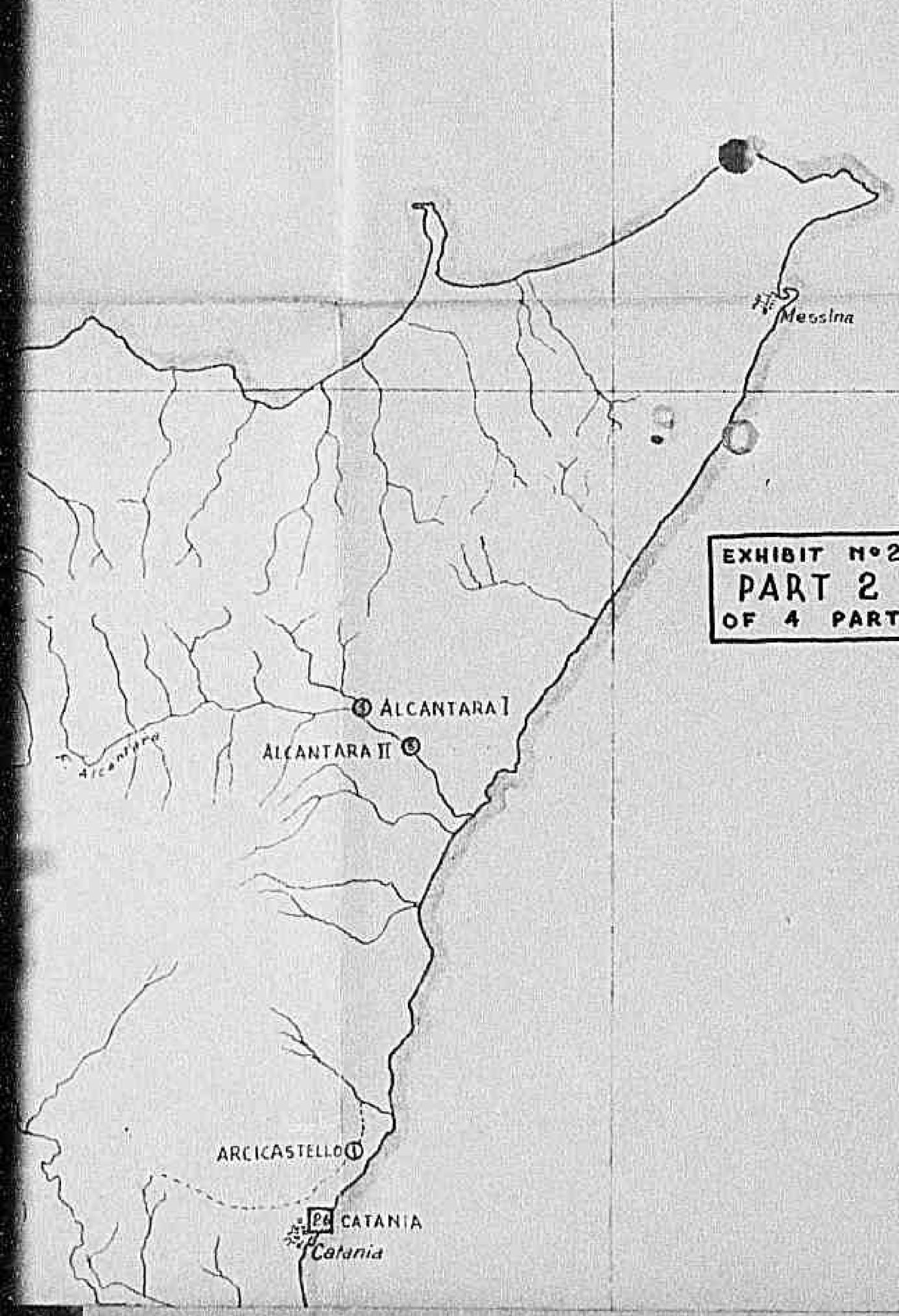
Marsala
Trapani
Castelvetrano
Selinunte
Ribera
Cattolica Eraclea
Siculiana
Montallegro
Burgio
Calamonte
Lucca Sicula
Alessandria della Rocca

Declassified E.O. 12356 Section 3.3/NND No. 785019

SICILY

Declassified E.O. 12356 Section 3.3/NND No. 785019

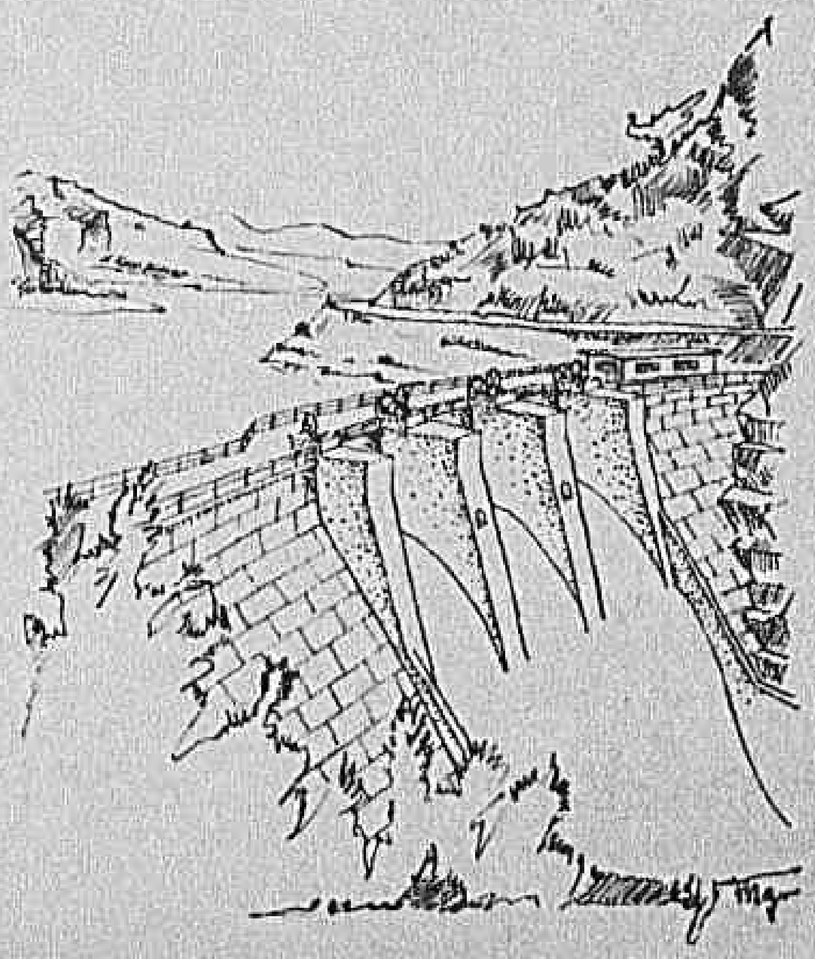
Declassified E.O. 12356 Section 3.3/NND No. 785019



ALLIED COMMISSION
PUBLIC WORKS AND UTILITIES DEPARTMENT
ELECTRICAL DIVISION

EXHIBIT Nº 23
PART 2
OF 4 PARTS

ELECTRICITY-ITALY
POWER PLANTS



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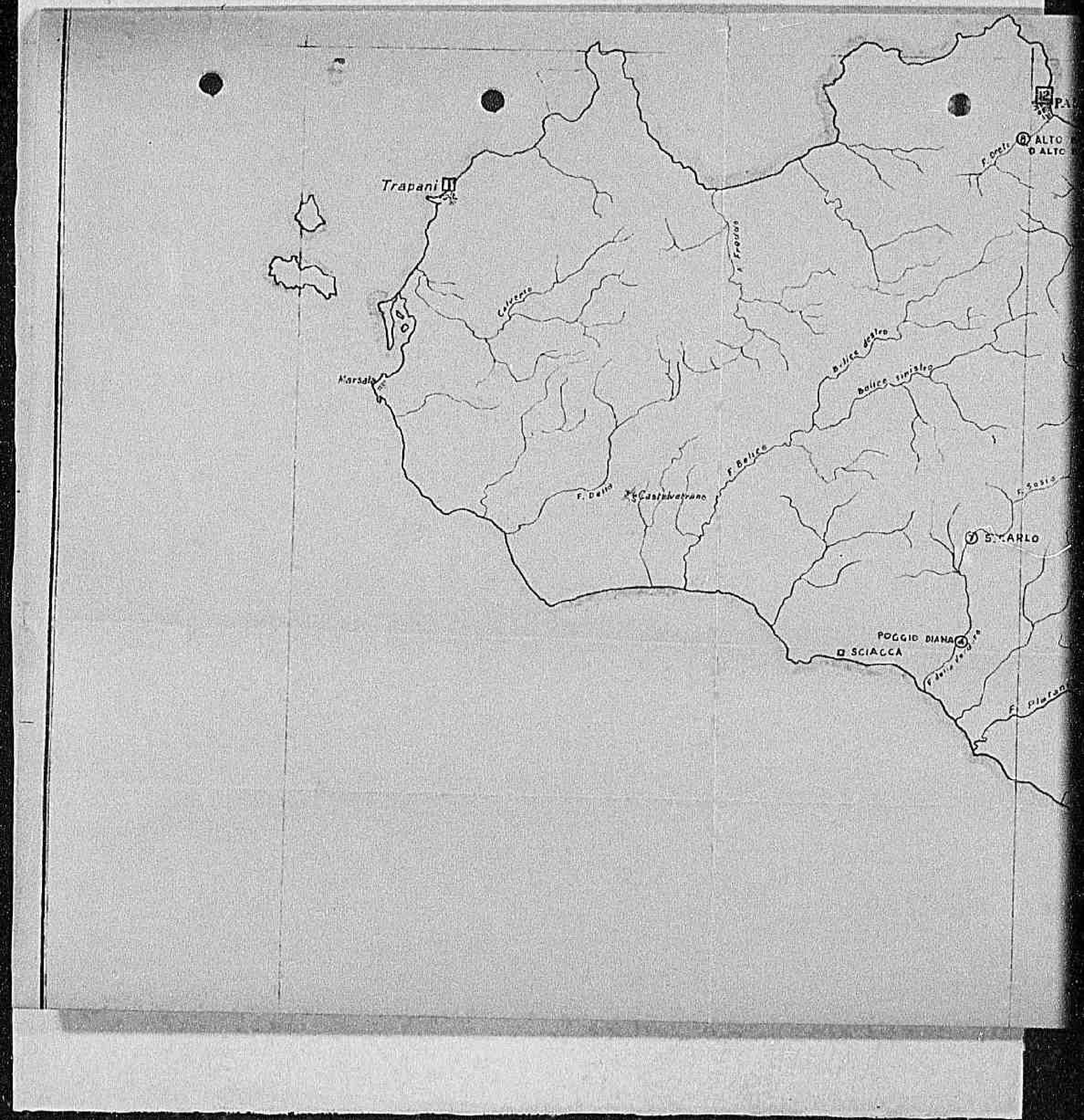

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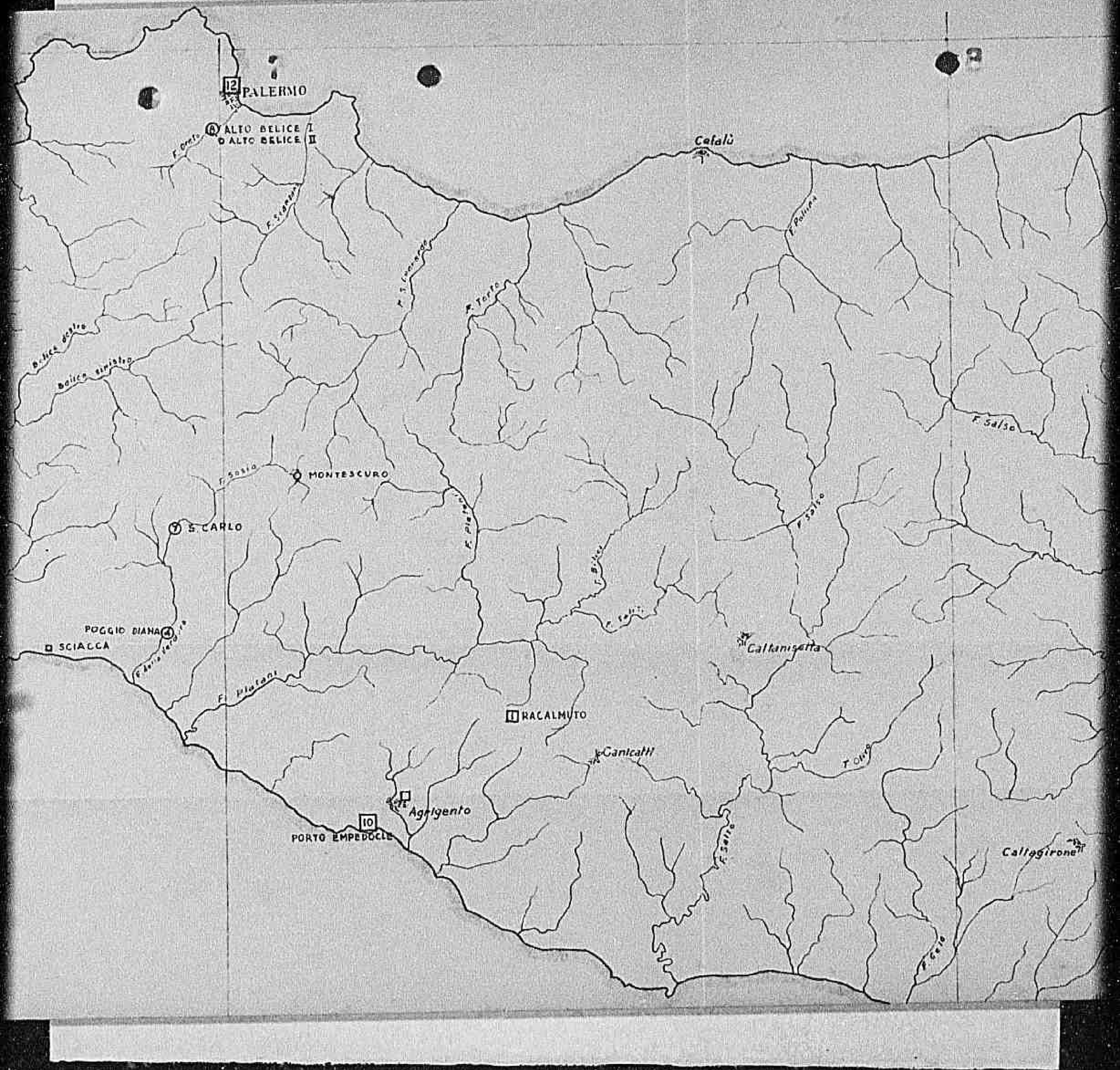

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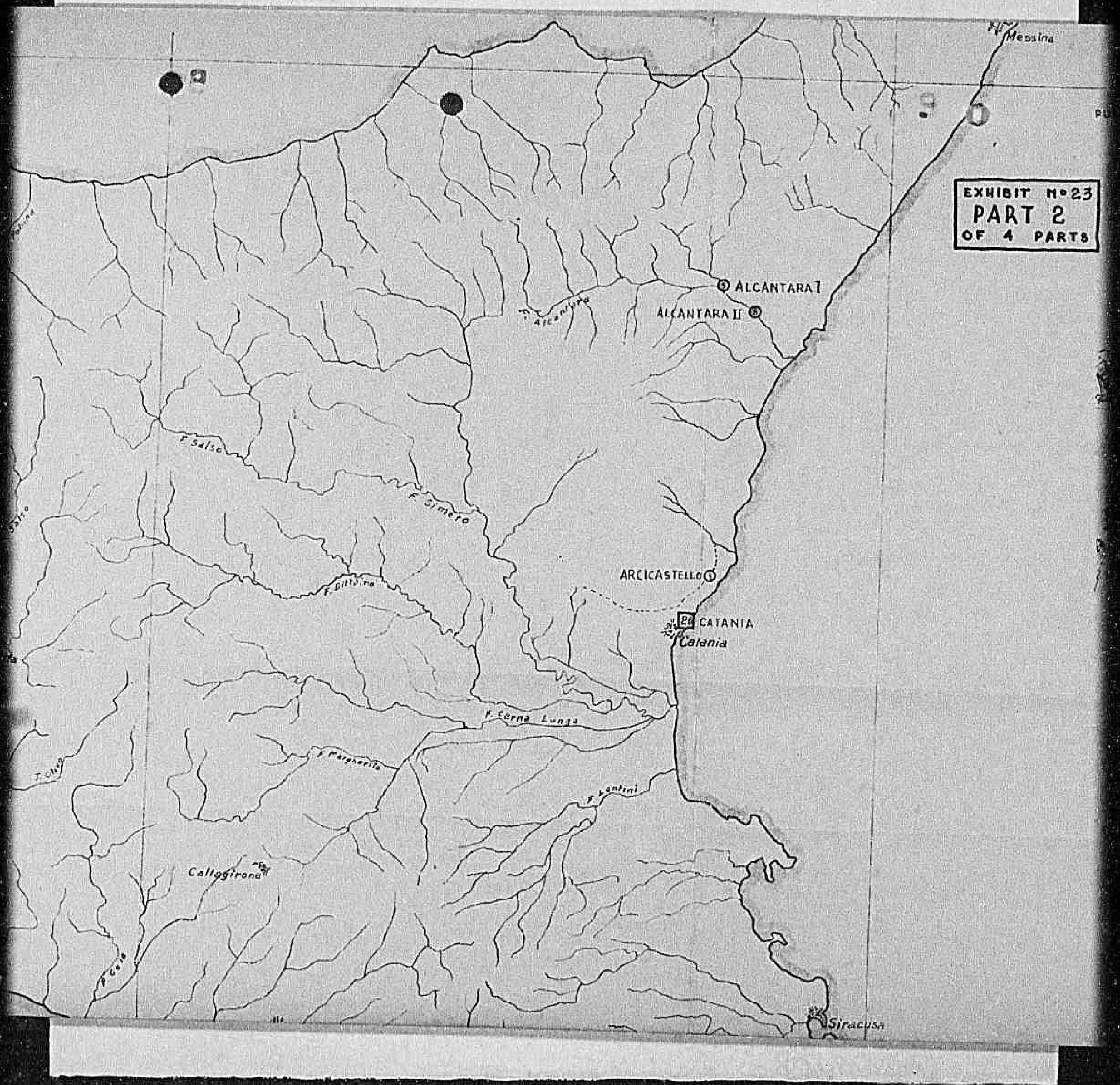

EXHIBIT No 23
PART 2
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Declassified E.O. 12356 Section 3.3/NND No. 785019

ALLIED COMMISSION
PUBLIC WORKS AND UTILITIES DEPARTMENT
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EXHIBIT No 23
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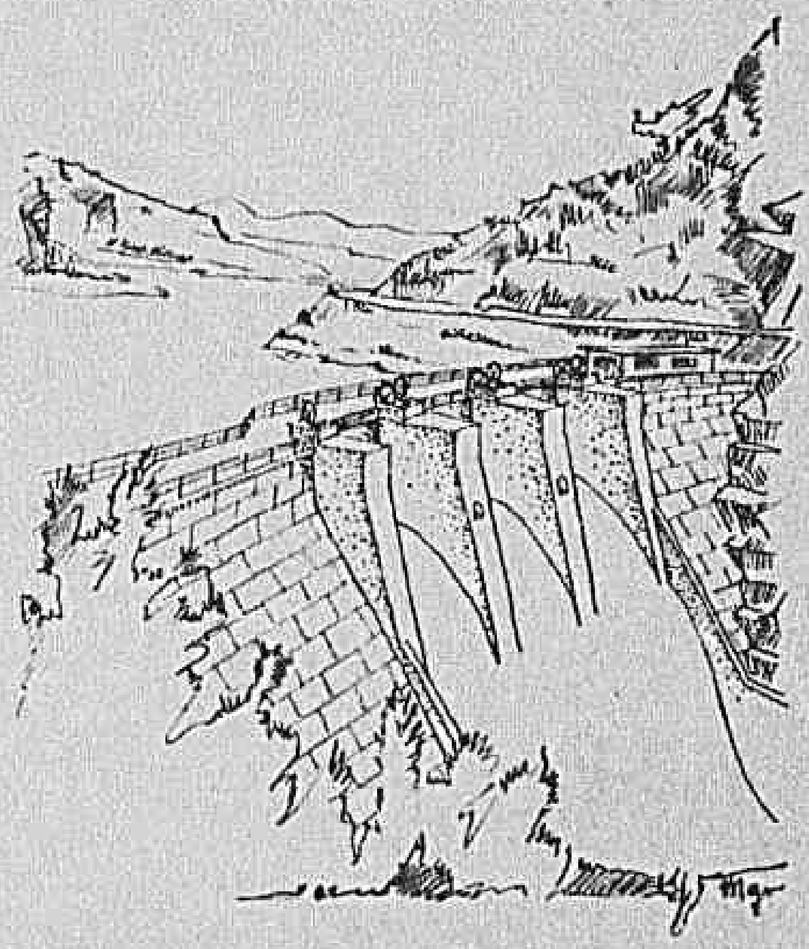
ELECTRICITY-ITALY
POWER PLANTS



LEGEND

POWER PLANTS

HYDRO		THERMO
○	OVER 100.000 KW.	□
○	10.000 - 100.000 KW.	□
○	1.000 - 10.000 KW.	□

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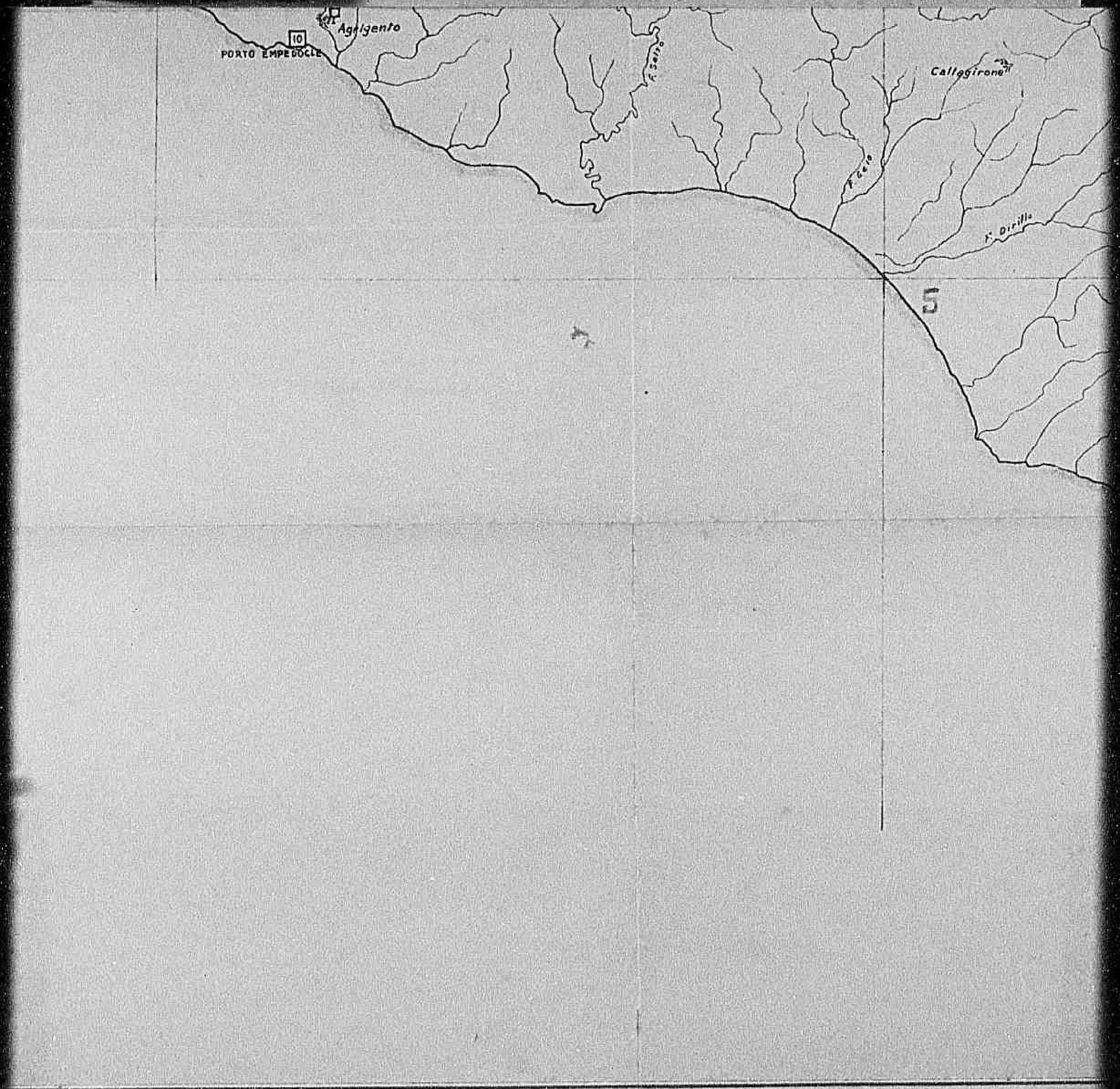

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HYDRO THERMO

○	OVER 100.000 KW.	□
○	10.000 - 100.000 KW.	□
○	1.000 - 10.000 KW.	□
○	300 - 1.000 KW.	□
∘	LESS THAN 300 KW.	▫

Installed generating capacity for example:

② 2.000 KW. to 2.999 KW.

⑭ 14.000 KW. to 14.999 KW.

⑮ 115.000 KW. to 115.999 KW.

SCALE 1:500.000

0 5 10 15 20 25 30 35 40 Km.

0 5 10 15 20 25 Miles

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CHARTS FILMED ON

35 MM

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HEADQUARTERS ALLIED COMMISSION
APO 794
Industry and Utilities Branch

Ref. : 320/PWU

30 September 1946

SUBJECT : Historical Report
Electricity Division
Industry & Utilities Branch
(formerly Public Works & Utilities S/C)

TO : A.F.H.Q. - G-5

1. In accordance with your telephone request, we forward herewith an additional copy of our historical report.

2. This extra copy has especially been prepared for transmission to C.C.S.; the original Reports, according to instructions received from the Executive Commissioner, were distributed as follows :

1 Copy	to	Division files
1 "	"	Chief Commissioner, after perusal to be forwarded to War Dept.
1 "	"	Executive Commissioner, after perusal to be forwarded to War Office
1 "	"	British Embassy
1 "	"	American Embassy
1 "	"	A.F.H.Q. G-5
1 "	"	Italian Ministry of Public Works.

FOR THE CHIEF COMMISSIONER:

H.M. WALKER
Colonel, CE
Director.

Declassified E.O. 12356 Section 3.3/NND No. 785019

Tel: 489081
Ext: 303

AC/mtp

HEADQUARTERS ALLIED COMMISSION
APO 794
Industry and Utilities Branch

320/PWU

22 August 1946

SUBJECT : Historical Report
Electrical Division,
Industry & Utilities Branch
(formerly Public Works and Utilities S/C).

TO : Executive Commissioner, H.Q., A.C.

1. Reference our 320/PWU dated 6 August 1946, and our proposal therein agreed to by the Executive Commissioner, for the distribution of the report as mentioned in above subject.

2. Forwarded herewith for your information is a copy of said report. Following is list of distribution:-

1 copy to Division files
" " " Chief Commissioner
" " " Executive Commissioner
" " " British Embassy, Rome
" " " American Embassy, Rome
" " " A.F.H.Q., G - 5
" " " Italian Ministry of Public Works.

H.M. WALKER
Colonel, C.E.,
Director

416

Declassified E.O. 12356 Section 3.3/NND No. 785019

Tel: 489081
Ext: 303

AC/mtp

HEADQUARTERS ALLIED COMMISSION
APO 794
Industry and Utilities Branch

320/PWU

22 August 1946

SUBJECT : Historical Report
Electrical Division,
Industry & Utilities Branch
(formerly Public Works & Utilities S/C).

TO : British Embassy, Rome.

1. Forwarded herewith for your information is a copy of the report mentioned in above subject.

2. This report covers the work of the Electrical Division for the period September 1943 to 1 June 1946.

H.M. WALKER,
Colonel, C.E.
Director

Declassified E.O. 12356 Section 3.3/NND No. 785019

Tel: 489081
Ext: 303

AC/mtp

HEADQUARTERS ALLIED COMMISSION
APO 794
Industry and Utilities Branch

320/PWU

22 August 1946

SUBJECT : Historical Report
Electrical Division,
Industry & Utilities Branch
(formerly Public Works & Utilities S/C).

TO : American Embassy, Rome.

1. Forwarded herewith for your information is a copy of the report mentioned in above subject.

2. This report covers the work of the Electrical Division for the period September 1943 to 1 June 1946.

H.M. WALKER,
Colonel, C.E.,
Director

Declassified E.O. 12356 Section 3.3/NND No. 785019

AC mtp

Tel: 489081
Ext: 303

HEADQUARTERS ALLIED COMMISSION
APO 794
Industry and Utilities Branch

21 August 1946

320/PWU

SUBJECT : Historical Report
Electrical Division,
Industry & Utilities Branch
(formerly Public Works & Utilities S/C).

TO : A.F.H.Q., G-5

1. In accordance with instructions received from the Executive Commissioner, we forward herewith for your information a copy of the report as per above subject.

2. Distribution of said report has been made as hereunder:

1 copy to Division files
" " " Chief Commissioner
" " " Executive Commissioner
" " " British Embassy, Rome
" " " American Embassy, Rome
" " " A.F.H.Q., G-5
" " " Italian Ministry of Public Works.

For the Chief Commissioner:

H.M. WALKER
Colonel, C.E.,
Director

4413

Declassified E.O. 12356 Section 3.3/NND No. 785019

0500 Econ Sec

ES/9.00

2nd IND.

ECONOMIC SECTION
H.Q. ALLIED COMMISSION, APO 794

9 August 1946
TO : CHIEF COMMISSIONER

1. Forwarded herewith is a comprehensive report of the Public Works and Utilities Sub-Commission.

2. It is recommended that the 7 copies of the report be distributed as follows:

a. To Files
b. To Chief Commissioner
c. To Executive Commissioner
d. U.S. Embassy
e. To British Embassy
f. AFHQ
g. To Italian Govt

NOTE - Suggest that copies a and b, when they have served their purpose, be forwarded to War Department and to War Office respectively.

3. Major Laughlin has done an outstanding piece of work in compiling this report.

Charles W Walton
CHARLES W. WALTON
Colonel, AC
Acting Vice President

I agree with distribution — including the AFHQ memorandum which can go to It. Govt.
MS/12/8

To Col Walker
For necessary action
CWW/14/8

320

4412

Declassified E.O. 12356 Section 3.3/NND No. 785019

900

1st Ind. HMW/ldv

Industry & Utilities Branch
H.Q. Allied Commission, APO 794

8 August 1946

TO : Acting Vice President
Economic Section

1. In reference to the attached report the recommendations in the basic communication are approved.

2. A study of this report reveals that it is a highly technical paper, a factual record of what was done to supply Electrical Power in Italy during and after the Italian Campaign.
It is an engineers' report and can only be completely appreciated by engineers and others who are thoroughly conversant with Electric Construction and Electric Power supply. For this reason a wide distribution of the report is not deemed advisable or necessary.

3. a) In reference to Para 3 of basic communication insofar as Volume I is concerned we can find nothing that violates security regulations. Attention is called however to Section V page 11 which contains a mild criticism of the Italian Government.

b) On Volume II Exhibits 1 and 2 A.F.H.Q. Administrative Memoranda No. 58, 12 December 1944 and No. 32, 30 May 1946, both restricted documents, we recommend should be removed prior to turning over a copy to Ministry of Public Works. While there is nothing contained therein that would reveal anything harmful to the Allied Forces, neither is there anything that would be on benefit to the Italians.

c) The most of the material contained in the report is common knowledge to the Ministry of Public Works or could be obtained by them from other sources. This paper merely gives it to them in a compact form. It would unquestionably be of great use to them, and inasmuch as we are trying to assist in Italy's Economic recovery, it would appear that they should have a copy.

d) As to the various maps attached as exhibits they were in general obtained from Italian sources in the first instance, therefor it would appear that there should be no reason for not including them in the event we do pass a copy to the Ministry of Public Works.

4. May we be advised in due course if these recommendations are approved ?

H.M. WALKER
Colonel, CE
Director.

Declassified E.O. 12356 Section 3.3/NND No. 785019

900

HEADQUARTERS ALLIED COMMISSION
APO 794

320/PWU 6 August 1946

SUBJECT: Historical Report
Electrical Division,
Industry and Utilities Branch
(formerly Public Works and Utilities S/C).

TO : Acting Vice-President,
Economic Section.

1. Attached herewith is a copy of the historical report of the Division for the period September 1943 to 1 June 1946.

2. It is recommended that a copy of this report be sent to the following for information:

(a) First copy to be placed in the permanent file of the Division along with all the basic data and original tracings of exhibits. This will permit additional copies to be prepared if desired in the future.

(b) Copy to the Chief Commissioner for his information and thereafter to be forwarded to War Department, Washington if desired.

(c) Copy to the Executive Commissioner for his information and thereafter to be forwarded to War Office, London if desired.

(d) Copy to the State Department or U.S. Embassy, Rome for information.

(e) Copy to the British Embassy for information.

(f) Copy to AFHQ, G-5.

3. After the report has been screened and checked for security it is recommended that one copy be sent to the Ministry of Public Works for their information.

Louis W. Laughlin

LOUIS W. LAUGHLIN,
Major, C.E.
Acting Deputy Director.

4410