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# Electrifying Europe

SHORT LOAN

The power of Europe in the construction  
of electricity networks

Vincent Lagendijk



aksant  
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## Chapter 3

### Planning a European network, 1927-34

In 1932 the journal *L'Européen* featured a front-page article by Marcel Ulrich.<sup>1</sup> Ulrich was laureate of the French *Ecole de Polytechnique* and *Ecole des Mines de Paris*.<sup>2</sup> At the time he also was president of UNIPEDE.<sup>3</sup> He earlier served as president with CIGRE. Ulrich thus was distinguished French engineer but also a well-known figure within the international electro-technical community. His article certainly appealed to the latter community, as Ulrich described on-going discussions about a European electricity network. Engineers proposed such schemes starting in 1929, which received support from the electro-technical community. About at the same time, the International Labor Organization and LoN took similar plans into consideration. Between 1930 and 1937, these Geneva organizations studied its feasibility. To engineers, a European interconnected network enabled a better economic mix by linking thermal and hydroelectric power plants.

As the idea of a European network was essentially a technological project, Ulrich's article seemed out of place in *L'Européen*. This journal provided a forum for different visions on European values and the future of Europe.<sup>4</sup> With other journals like *L'Europe*, *L'Europe nouvelle*, *Panuropa*, *l'Européen* was an outgrowth of the idea of European unity, which gained significant momentum and became a movement in the 1920s. To Europeanists – a loosely grouped elitist alliance of people promoting and believing in European unification – “Europe” seemed a way to overcome economic nationalism and political disagreement, and to restore Europe's pre-war global prestige. Ideas for unifying Europe often included technological projects as a unifying force. The European movement showed fascination with electricity, as well as with rational organization and technological solutions. It

1 Marcel Ulrich, “Un projet de réseau européen. Le transport de l'énergie électrique,” *L'Européen* 25 (1932). I thank Waqar Zaidi of Imperial College for pointing my attention to this article.

2 *Annales des Mines : Biographies relatives à des ingénieurs des mines décédés*, s.v. “Jacques Marie Marcel Ulrich”, <http://www.annales.org/archives/x/ulrich.html> (accessed July 11, 2007).

3 Ulrich (1880-1933) was UNIPEDE president from September 1930 until July 1932. See Lyons, *75 years*, 110.

4 Etienne Deschamps, “L'Européen (1929-1940): A Cultural Review at the Heart of the Debate on European Identity,” *European Review of History - Revue européenne d'histoire* 9, no. 1 (2002): 85-95.

is therefore not surprising that Europeanists saw a European electricity network as a tool for forging European unity. Many Europeanists believed that such a network could increase material and social progress in Europe. Some even went further: they believed that interconnecting Europe's countries also encompassed a dimension that I would label an *ideological mix*. In their eyes, the *immediate* construction of a European high-voltage network could relieve unemployment, spark economic growth, modernize Central and Eastern European economies, and at the same time create a spiritual and unifying European bond. In other words, they regarded the rationalization of Europe's energy economy as a panacea for a multifariousness of interwar issues. Many engineers, however, including Ulrich, did not see immediate prospects for such a network. Rather, they saw it as a long-term and gradual process whereby Europe's electricity structure was rationalized and expanded.

This chapter discloses the particular history of the idea of a European electricity network in the 1930s, and traces its origins. This idea originated in the electro-technical community, with support from industry, but it gradually became a regular topic on the international political agenda. A network of engineers, entrepreneurs, and politicians was responsible for spreading this idea. All were infused with European ideas, and convinced that European unification could not only be a political and economic project. "Europe" needed a technological dimension as well. Generally speaking, these actors motivated their ideas by pointing at the economic crisis and deteriorating international relations, but also demonstrated a strong belief in planning, coordination, and rationalization.

But the ideal of a European electricity network was not uncontested. A proposal made by Belgium met substantial opposition from national economic interests groups. Many questioned the technological and economic feasibility of such an undertaking. Still, although (national) authorities checked those exchanges of energy flows across borders, in practice electricity exchanges between countries *were* taking place. Political turmoil eventually brought studies of a possible European network to a halt.

### European unification and electricity

Ideas of European unification gained significant strength after WWI. Such ideas often had roots in much older notions of shared European values, as Europe was seen as a centuries old geographical and cultural concept.<sup>5</sup> After WWI, ideas on European unification were more connected to precarious circumstances of the time

<sup>5</sup> See for example den Boer, "Europe."

and on the options for shaping a better future. During interwar years, "Europe" was envisaged as a possible solution to several lingering political, cultural, and economic issues. WWI itself was interpreted as a low point for Europe's civilization. According to historian Michael Adas "it was clear to virtually all Western thinkers that European civilization had entered a period of profound crisis"<sup>6</sup> Historian Jo-Anne Pemberton writes that "visions of despair and warnings that the social and intellectual foundations of Western civilization were disintegrating featured prominently in philosophical and social commentary"<sup>7</sup>

Politically, the 1919 Paris Peace Treaties restored a balance among European powers. This was however a brittle and precarious one. The dissolution of the Austrian-Hungarian Empire and the re-creation of Poland led to border changes in Central and Eastern Europe. This, in turn, caused problems with minority groups and displaced persons. In Western Europe, fierce hostility still existed between France and Germany, especially over the system of reparations established by the Peace Conference. Economically, these reparations contributed to an unstable conjuncture. Most European countries experienced high inflation during and immediately after the war.<sup>8</sup> Fear of inflation and attempts to regain pre-war markets led to inward-looking national economic policies, resulting in a spree of tariff walls and volatile exchange rates. The years after 1929 saw an even further slide into the economic abyss.<sup>9</sup> Meanwhile, the United States closed domestic markets to European products, restricted immigration and abdicated from international politics by not joining the League of Nations. The new communist regime in the Soviet Union also turned its back to the international political arena, only to join the League in September 1934.

The wish for unifying Europe was a response to these issues.<sup>10</sup> Unification – either economically, politically, or both – was a way to restore pre-war European power and prestige.<sup>11</sup> A well-defined way towards European unity did not exist.

<sup>6</sup> Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance* (Ithaca: Cornell University Press, 1989), 381.

<sup>7</sup> Pemberton, "Towards a New World Order: A Twentieth Century Story," *Review of International Studies* 27 (2001): 312.

<sup>8</sup> Eichengreen identified a postwar boom to 1919-1921. See Eichengreen, *Golden*, 107ff.

<sup>9</sup> An excellent introduction into the European economic situation after WWI and the Great Depression is Clavin, *The Great Depression in Europe, 1929-1939* (Basingstoke: Macmillan, 2000).

<sup>10</sup> For an overview of all sorts of European-inspired manifestations during the Interwar, see Pegg, *Evolution*; and Michel Dumoulin and Yves Stelandre, *L'Idée européenne dans l'entre-deux-guerres* (Louvain-la-Neuve: Academia Bruylant, 1992).

<sup>11</sup> Analytically speaking, historians often make distinctions between a political, economical, and cultural path and unity is often made. In practice, these different paths are obviously intertwined. See Sylvian Schirmann, "Introduction," in *Organisations internationales et architectures européennes 1929-1939. Actes du colloque de Metz 31 mai - 1er juin 2001. En hommage à Raymond Poidevin*, ed. Sylvian Schirmann (Metz: Centre de Recherche Histoire et Civilisation de l'Université de Metz, 2003), 11.

On the whole, economic unification was seen more viable than, and a precondition for, political unification.<sup>12</sup> Without economic cooperation, competition was likely to plunge Europe into another major conflict. Economic unification would not only end “beggar-thy-neighbor” policies, but would result in a large market as well. The United States with its large domestic market, was observed with a mix of envy and admiration, and often compared to Europe.<sup>13</sup> In the 1920s, entrepreneurs and politicians looked across the Atlantic for ideas on how to improve efficiency and rationalization, promoted by the technocracy movement and proponents of scientific management. By applying these ideas, not only in factories and electricity systems but on Europe’s economy as a whole, they tried to mimic the economic success of the United States.<sup>14</sup>

Many argued that to arrive at similar levels of economic prosperity and technical progress, and to be able to resist American economic supremacy, a United States of Europe had to be created as a counterweight. Count Richard Coudenhove-Kalergi was one of them. Coudenhove was the founder of the Pan-European movement in 1922 and an important Europeanist thinker in the Interwar period. He thought that only an economic and political organized Europe could compete on an equal footing with the United States, the Soviet Union, and the British Empire (see Figure 3.1).<sup>15</sup> Europe should become the fourth world power. The notion of Pan-America, the association of sovereign states in North and South America, inspired Coudenhove to come up with the term “Pan-Europe”.<sup>16</sup>

Next to Coudenhove, another important ideologue of the European movement was Francis Delaisi (1873-1947). This French left-wing journalist started to publish on international economy and politics after WWI.<sup>17</sup> Delaisi identified two contradictions in postwar Europe. Firstly, he condemned the subjection of economic policy to narrow national political interests. To Delaisi, this ran counter

12 Michel Dumoulin, “La reflexion sur les espaces regionaux en Europe à la aube des annees trente,” in *Organisations internationales*, ed. Schirmann, 24.

13 Contemporary Dannie Heineman explicitly drew potential lessons from the American experience for Europe. See Heineman, *Outline of a New Europe* (Brussels: Vromant, 1930), 16ff. More recently historian Victoria de Grazia has also written about comparisons being made between the two. See her *Irresistible Empire: America’s Advance Through 20th-Century Europe* (Cambridge: Belknap Harvard, 2005), 78-95.

14 Charles S. Maier, *In Search of Stability: Explorations in Historical Political Economy* (Cambridge: Cambridge University Press, 1987), 22ff. Also see Pemberton, “New Worlds for Old: the League of Nations in the Age of Electricity,” *Review of International Studies* 28 (2002): 320.

15 R.N. Coudenhove-Kalergi, *PanEuropa* (Vienna: Editions Paneuropéennes, 1928), 4. A recent biography on Coudenhove is Vanessa Conze, *Richard Coudenhove-Kalergi. Umstrittener Visionär Europas* (Zurich: Muster-Schmidt, 2004).

16 Richard Coudenhove-Kalergi, *PanEuropa ABC* (Vienna: Paneuropa-Verlag, 1931), 3.

17 Michèle Pasture, “Francis Delaisi et l’Europe, 1925-1929-1931 (extraits),” in *L’Idée européenne*, ed. Dumoulin and Stelandre, 43.

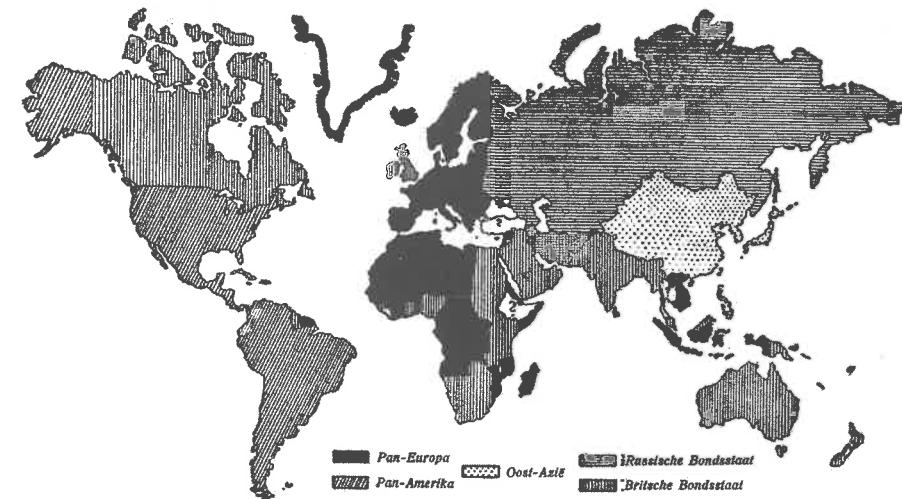


Figure 3.1 – Coudenhove-Kalergi’s Paneuropa (in black) in the world  
Source: Coudenhove-Kalergi, *PanEuropa ABC*, 32.

to existing economic interdependencies between European countries.<sup>18</sup> Secondly, Delaisi identified a paradox between what he regarded the “two Europes”; a horse-power-Europe (Europe A) and horse-drawn-Europe (Europe B).<sup>19</sup> In “Europe A”, Delaisi argued, a mechanized industry came about with the steam engine as key technology. This also led to a new entrepreneurial bourgeoisie that broke the political power of old aristocratic elites. Besides increasing production, these changes triggered democratisation.<sup>20</sup> To Delaisi “[h]orse-power [was] the natural supporter of democracy”.<sup>21</sup> “Europe B”, on the other, relied on animal power rather than on steam engines, and knew a *latifundia* subsistence. A seeming lack of democracy followed the lack of development.<sup>22</sup>

State intervention could not solve these contradictions, Delaisi argued. Rather, it needed liberal economic principles. For Delaisi, abolishing protectionist policy was the first step towards a peaceful and united Europe. In addition, rationalizing production methods would further strengthen interdependent economic re-

18 This is the main thesis of his *Les contradictions du monde moderne* (Paris: Payot, 1925). I used the English translation: *Political Myths and Economic Realities* (London: N. Douglas, 1927).

19 This was the theme of Delaisi’s influential *Les deux Europes* (Paris: Payot, 1929). The dividing line ran across Danzig, Cracow, Budapest, Florence, Barcelona, and Bilbao.

20 *Ibid.*, 47ff.

21 “[l]e cheval-vapeur est le support naturel de la démocratie”. *Ibid.*, 50.

22 *Ibid.*, 49.

lations.<sup>23</sup> He favored international institutions to guide this process, stressing the triangle of LoN, ILO, and the International Chamber of Commerce (ICC, 1920).<sup>24</sup> Although his ideas were sometimes seen as simple, if not simplistic, they became popular within the international trade union circles and the European movement.<sup>25</sup> Delaisi's emphasis on planning and rationalization was equally en vogue. This was a notion that would come to infuse European ideas, especially after 1927.

While Delaisi saw an important role for technology, the supposed relation between European unification and technology went much further, in particular for network technologies. Many contemporaries regarded these as a unifying force, and fundamental precondition for cultural, economic, and political unity. Starting with railways, argues sociologist Armand Mattelart,

the image of the network served as a guide for the first formulation of a redemptive ideology of communication. Networks of communication were envisaged as created of a new universal bond.<sup>26</sup>

Electricity transmission systems enable certain forms of transport and communication networks.<sup>27</sup> While these latter two physically circulate messages and ideas, and potentially bring people together, electricity is not able to do this directly.

But figuratively electricity was nonetheless seen as a means of connecting people and carrying ideas. Some saw electrification as an incentive to collaboration. For example American engineer Charles P. Steinmetz claimed that "to get the economy of the electric power, co-ordination of all the industries is necessary, and the electric power is probably today the most powerful force tending towards co-ordinations, that is cooperation".<sup>28</sup> In addition, electricity network also served as a powerful symbol. For example, the French internationalist magazine *Notre Temps* introduced a weekly column in 1929 named *La Jeune Europe*, which reported on the progress on European unification.<sup>29</sup> The headers used in this of *Notre Temps*

23 Franck Théry, *Construire L'Europe dans les années vingt: L'action de l'Union paneuropéenne sur la scène franco-allemande, 1924-1932* (Geneva: Institut européen de l'Université de Genève, 1998), 53; and Delaisi, *Les deux*, 193.

24 Théry, *Construire*, 56.

25 Dumoulin, "La reflexion," 25; and Patrick Pasture, "The Interwar Origins of International Labour's European Commitment (1919-1934)," *Contemporary European History* 10, no. 2 (2001): 226-227.

26 Mattelart, *The Invention*, 85.

27 This is stressed in Nye, *Electrifying*, 26.

28 Steinmetz is cited in *Ibid.*, 167.

29 The column was written by Pierre Brosolette, who was a well-established French journalist and member of the *Section Française de l'Internationale Ouvrière* (SFIO), a socialist party. He also wrote for *L'Europe nouvelle*. During the German occupation he was active in the Resistance movement. On the role of *Notre Temps* within the Interwar Europeanist circle, see Klaus-Peter Sick, "A Europe of Pluralist Internationalism: The Development of the French Theory of Interdependence from Emile Durkheim to the Circle Around *Notre Temps* (1890-1930)," *Journal of European Integration History* 8, no. 2 (2002): 45-68.

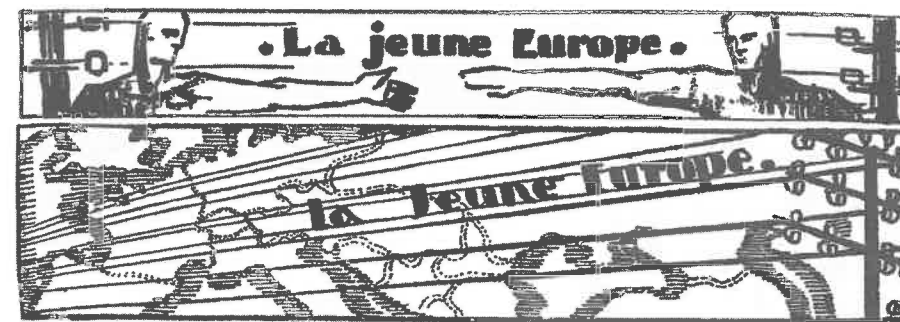


Figure 3.2 – Headers in *Notre Temps*  
 Headers from *La Jeune Europe*, a column printed in the journal *Notre Temps*, from different years. I am indebted to Waqar Zaidi for providing me with these images.

confirm electricity's prominent role in Europe's (see Figure 3.2).<sup>30</sup> The first image shows two male figures reaching out to each other, while standing in front of electricity poles. The second shows a birds' view of Europe, with electricity lines in the foreground cover the continent. The asymmetric crescendo directions of the power lines also suggest progress. While the first image hints at a European electricity network, the second invokes a form of European cooperation and progress through electricity.<sup>31</sup> In particular, electricity networks were regarded as bearers and indicators of progress. Rural electrification was often associated with a modernization mission. It brought an "urban" technology into the hinterland, and made its inhabitants equally "modern".<sup>32</sup> The halo of progress and cooperation surrounding electricity functioned like a magnet.<sup>33</sup> Thus, "Europe" and electricity had symbolic overlap in this period.

An explicit combination of such ideas is the foreword to Delaisi's *Les deux Europes*, written by Dannie Heineman.<sup>34</sup> Heineman, a German-trained electrical engineer of American origin, was administrator of SOFINA. This was one of the largest *Unternehmensgeschäfte* in the 1920s and 1930s. In the foreword, Heineman argued that the war had deprived Europe of its former grandeur and markets.<sup>35</sup> European countries responded by protecting domestic markets, while subsidizing export industries. Heineman saw two main problems. First, a market crisis

30 The first image of the two men seems to anticipate the journal's later cooperative stance towards the national-socialistic ideology, especially when paying attention to the right arm of the person on the right.

31 I thank Dr. Alexander Badenoch for helping me in analyzing this imagery.

32 Coutard, "Imaginaire".

33 Schivelbusch, *Disenchanted*, 75. Nye makes a similar point in *Electrifying*, 168.

34 Heineman, "Préface," in Delaisi, *Les deux Europe* (Paris: Payot, 1929), 7-20.

35 *Ibid.*, 8.

in "Europe A" leading to unemployment, and second, an agricultural crisis in "Europe B".<sup>36</sup> Heineman envisaged electricity to restore the "broken economic harmony" between "Europe A" and "B", and to help mend both crises.<sup>37</sup> Electrification would help lowering costs of manufactured products in Europe A, thus making its products more competitive on world markets. At the same time, production and purchasing power of agricultural communities in Europe B would be raised. According to Heineman it was electricity that enabled every European region to industrialise.<sup>38</sup> "The imbalance caused by horse-power", wrote Heineman, "is abolished by kilowatt".<sup>39</sup> An International Clearing House should help finance large works of public interest, like railways but in particular power plants and networks.<sup>40</sup> In addition, Europe should rationalise its economy; not only its production, but also its sales and the transport of products.

### The European project taking shape

Despite this wide range of ideas about European unification, no central rallying point existed for the European movement. This changed in 1929. On September 5 of that year, Aristide Briand addressed the Assembly of the LoN, and proposed to seek a way to forge a United States of Europe. The initiative of the French Minister of Foreign Affairs in retrospect seems a supreme attempt to forge European security and stability, both politically and economically. His appeal to the Assembly underlined the need for "some sort of federal bond" between the people of Europe to tackle the political and economic issues. Briand aimed to provide a political dimension to on-going "technical and economic initiatives".<sup>41</sup> It helped to carve a niche for a regional and European policy in the LoN. That niche would be the *Commission for Enquiry on European Union (CEEU)*.<sup>42</sup> Set up by the Assembly in September 1930, this commission was the main vehicle within the League on European collaboration. It worked closely with other League organizations and commissions. But it also radiated outside the League's sphere.

36 Ibid., 11-12.

37 Ibid., p.17. The disturbance between Europe A and B was, according to Heineman, primarily caused by the introduction of steam power.

38 Ibid.

39 "Le déséquilibre que le cheval-vapeur a provoqué c'est le kilowatt qui le supprime". Ibid., 17.

40 Ibid., 11-12.

41 LoN, *Verbatim Record of the 10th Ordinary Session of the Assembly of the League of Nations, 6th Plenary Meeting*, LoN doc, ser., A.10.1929 (Geneva: LoN, 1929), 5.

42 One of few studies on the CEEU is Antoine Fleury, "Une évaluation des travaux de la Commission d'Étude pour l'Union Européenne 1930-1937," in *Organisations internationales*, ed. Schirmann, 35-53.

While Briand's proposal placed European unification firmly on the international political agenda, it was preceded by several initiatives in the economic sphere. For one, within the international labor movement "Europe" functioned as "a unifying concept" since the early 1920s.<sup>43</sup> For another, support for European economic co-operation gained a foothold, especially in the financial and corporate world.<sup>44</sup> The first initiatives came from politician-industrialists, and were inspired by continuing Franco-German antagonisms. In 1921 the French Minister of Liberated Areas, Louis Loucheur, and the German Minister of Reconstruction, Walther Rathenau, struck an agreement in Wiesbaden, on paying German reparations in kind.<sup>45</sup> The Wiesbaden agreements were however revoked because of domestic opposition.<sup>46</sup>

Further rapprochement between France and Germany was reached, however. Many considered 1924-1925 a turning point.<sup>47</sup> The 1924 Dawes Plan restructured German reparations payments and led to an influx of capital which ended high inflation in Germany.<sup>48</sup> The next year the Pact of Locarno fixed the Franco-German border, politically rehabilitated Germany's position in Europe, thus solving another major issue haunting the European scene. Germany's reentry in international politics sparked a wave of commercial agreements and 14 international cartels were formed between 1924 and 1926.<sup>49</sup> In particular the *Entente Internationale de l'Acier* was regarded as an economic counterpart to Locarno.<sup>50</sup> Comprising an iron and steel production cartel of Belgian, French, German, and Luxembourg companies, this entente was signed in 1926 after eight months of negotiation.<sup>51</sup> According to one historian, before 1925 the debate on schemes for European unification was disparate, but "[w]hat followed after 1925 was characterized by the fact that the discussion became more concentrated, more purposeful".<sup>52</sup>

43 Pasture, "The Interwar," 222ff.

44 Éric Bussière, *La France, la Belgique et l'organisation économique de l'Europe, 1918-1935* (Paris: Comité pour l'histoire économique et financière de la France, 1992), 315. Also see Théry, *Construire* 63ff.

45 See Ibid., 64-65; Bussière, *La France*, 131-135; and Louis Loucheur and Jacques de Launay, *Carnets secrets, 1908-1932* (Brussels: Éditions Brepols, 1962), 84-95.

46 This opposition was not just domestic. In particular Great Britain was, within the International Reparations Commission, against such a scheme. See Carls, *Louis Loucheur*, 228-234.

47 For positive changes between Germany and France see Théry, *Construire*, 9-13. He points to three developments in particular. First, the accession of Gustav Stresemann as Chancellor, who was willing to fulfill Germany's obligations as laid down in the Versailles Treaty. Second, the adoption of the Dawes Plan in August 1924. The third event was Germany's recognition of its western border vis-à-vis Belgium and France.

48 Patrick O. Cohrs, "The First 'Real' Peace Settlements after the First World War: Britain, the United States and the Accords of London and Locarno, 1923-1925," *Contemporary European History* 12, no. 1 (2003): 1-31.

49 Théry, *Construire*, 57-58.

50 Maier, *Recasting*, 542.

51 Czechoslovakia, Poland, Austria and Hungary later joined. Théry, *Construire*, 60.

52 Peter Krüger, "European Ideology and European Reality: European Unity and German Foreign Policy in the 1920s," in *European Unity in Context: The Interwar Period*, ed. Peter M.R. Stirk (London: Pinter, 1989), 86.

One such purposeful development was set in motion by Louis Loucheur in that year. Loucheur proposed to host an international economic conference, under the auspices of the LoN.<sup>53</sup> The European economy in particular was to be a central topic. Loucheur, active in both politics and industry, envisaged an economically unified Europe, based on industrial cooperation.<sup>54</sup> Historian Stephen Carls stressed how Loucheur realized during the Paris Peace negotiations that “the Germans would eventually outstrip the French economically, regardless of the measures taken at the conference”.<sup>55</sup> From that moment he was a proponent of a European economic system with Germany as a cornerstone. Loucheur envisaged such a European economy existing of private ententes in the industrial sector – like coal, steel, iron, chemicals, and electricity –, and in particular along a German-Franco axis. Such a “Europe des producteurs” had two main advantages, according to Loucheur. First, it enabled processes of rationalization beyond the scope of a single country, encompassing the whole of Europe. Second, international agreements could help transform the existing climate of custom barriers, and restore pre-war purchasing power.<sup>56</sup> The International Economic Conference eventually took place in Geneva, in May 1927. During the previous eighteen months, the League’s Economic Organization and the appointed Preparatory Committee worked to achieve a consensus. They decided that the Conference participants should be experts in economics, trade, industry, and scientific management.<sup>57</sup> The subsequent Conference succeeded in passing resolutions on lower trade tariffs. Negotiations on tariff truces were one topic, and another was economic rationalization within a European framework – along the lines of Loucheur.

According to a report by ILO on the conference, “[t]he whole work of the Conference was dominated by the idea of rationalization”.<sup>58</sup> In particular, the Conference discussed the ideal of a rational distribution of work between nations, including relations between agricultural and industrial countries. International industrial agreements were equally seen as a measure of rationalization.<sup>59</sup> The closing resolution of the Conference stressed that these measures were of a European nature:

53 The whole international and French context surrounding this proposal is best explored in Chapter II of Bussière, *La France*, 257ff.

54 Veronique Pradier, “L’Europe de Louis Loucheur: Le projet d’un homme d’affaires en politique,” *Études et documents V* (1993): 295. Also see Bussière, “L’Organisation économique de la SDN et la naissance du régionalisme économique,” *Relations internationales* 75 (1993): 304.

55 Carls, *Louis Loucheur*, 171.

56 Pradier, “L’Europe”, 295; and Théry, *Construire*, 65-66.

57 Pemberton, “New Worlds”, 319.

58 International Labour Office, *The Social Aspects of Rationalisation: Introductory Studies* (Geneva: P.S. King, 1931), 5.

59 Ibid.

[T]he Conference has fully carried out its task of setting forth the principles and recommendations best fitted to contribute to an improvement of the economic situation of the world and in particular to that of Europe, thus contributing at the same time to the strengthening of peaceful relations among nations.<sup>60</sup>

From Loucheur’s suggestion for an economic conference, inspired by his quest for economic unification, to Briand’s politically oriented proposal seemed a logical next step. In September 1930 a Japanese delegate to the LoN noted that “the European federation, that is Briand and Loucheur”.<sup>61</sup> Adding a technological part to these economic and political initiatives for uniting Europe seemed almost equally logical.

This technological part also included electricity networks. At the International Economic Conference, electricity was one topic on the table. Among many other cartels under discussion Loucheur himself pleaded for forming an electricity cartel, based on Franco-German cooperation.<sup>62</sup> At the same time, the Conference recognised the electricity industry as one where international rationalisation made sense, which should lead to lower prices and increased production. Direct reference was made to the potential role of international connections between various hydroelectric and thermal power plants:

From year to year co-operation between hydroelectricity power stations and coal-fired power stations improves as a result of the increasingly high voltages used for transmission. [...] Thus the idea of an international linking-up of water- and steam-produced electrical energy is advancing towards realization, and wholly new vistas are opening for international co-operation in power generation. (...) By this system the question of world power supply might perhaps be more economically solved than ever before.<sup>63</sup>

Although electricity was part of discussions on international rationalization, it was not directly linked to European cooperation. It was about to happen, however, as within the international electro-technical community ideas of Europe and ideas of rationalization were invoked simultaneously in the form of a common electricity system.

60 LoN, *World Economic Conference: Discussion and Declarations on the Report of the Conference at the Council of the League of Nations on June 16th, 1927* (Geneva: LoN, 1927), 14.

61 “la Fédération européenne, c’est Briand-Loucheur.” Cited in: Pradier, “L’Europe”, note 39.

62 René Brion, “Le rôle de la Sofina,” in *Le financement de l’industrie électrique, 1880-1980*, ed. Monique Trédé-Boulmer (Paris: Association pour l’histoire de l’électricité en France, 1994), 226.

63 LoN, *International Economic Conference, Geneva, May 1927*, vol. 16, *Documentation: Electrical Industry* (Geneva: LoN, 1927), 17.

### Imagining Europe electrically

The first idea for a European-wide electricity network was put forward in May 1929.<sup>64</sup> This was two years after the International Economic Conference, and several months before Briand's speech. French engineer George Viel presented a paper on the potential of 400 kV technology and its application in France, at a conference hosted by *Groupe du Sud-Est de la Société Française des Electriciens*. He argued that exploiting distant hydroelectric resources was difficult without transmission voltages higher than 220 kV, regardless of the precise location.<sup>65</sup> At 400 kV electricity could be transmitted over 1,000 km without substantial losses. This would enable France to construct connections with neighboring countries like Spain and Italy, but also with the Ruhr and Sarre regions.<sup>66</sup> Seasonal exchange with these countries thus resulted in saving large amounts of precious coal. Viel argued that a 400 kV grid could connect centers of hydroelectricity production, and therefore enabled the exchange of seasonal surpluses.<sup>67</sup>

In the last part of his paper, Viel pondered on the possibilities of 400 kV on the European mainland.<sup>68</sup> Here similar results could be achieved: a better economic mix, better connections between generation and consumption, resulting in lower electricity prices. The main difference, however, was the increase of scale of rationalization. This in addition enabled peak load savings because of the longitudinal time differences. He added a map of a possible scheme for such a European network (see Figure 3.3).<sup>69</sup>

Viel's interest in long-distance transmission predated his 1929 plan. As director of the *Compagnie électrique de la Loire et du Centre*, he pioneered in erecting interconnections at 52 and 120 kV. He also planned an interconnection between the Massif Centrale and the Alpine regions by higher voltages, which was gradually brought into service under Viel's guidance between 1925 and 1940.<sup>70</sup> His ponderings on an electricity network beyond French borders were therefore not startling.

64 Several of these plans have been mentioned elsewhere, but mostly to illustrate Interwar thinking or as examples of technocratic utopias. Never before have its impact been properly assessed. See for example Fridlund and Maier, "The Second."; Maier, "Systems Connected: IG Auschwitz, Kaprun, and the Building of European Power Grids up to 1945," in *Networking Europe*, ed. Van der Vleuten and Kaijser, 129-158. The earlier mentioned Atlantropa project by Hermann Sörgel will not be dealt with here. This plan never saw serious consideration on the international level.

65 Georges Viel, "Etude d'un reseau 400.000 volts," *Revue generale de l'electricité*, no. 28 (1930): 729.

66 *Ibid.*, 740.

67 *Ibid.*

68 *Ibid.*, 741-744.

69 *Ibid.*, 742-743.

70 Claire Seyeux, "Gestion du personnel: La réponse de Loire et Centre 1912-1932," in *Stratégies, gestion*, ed. Barjot et al., 382.

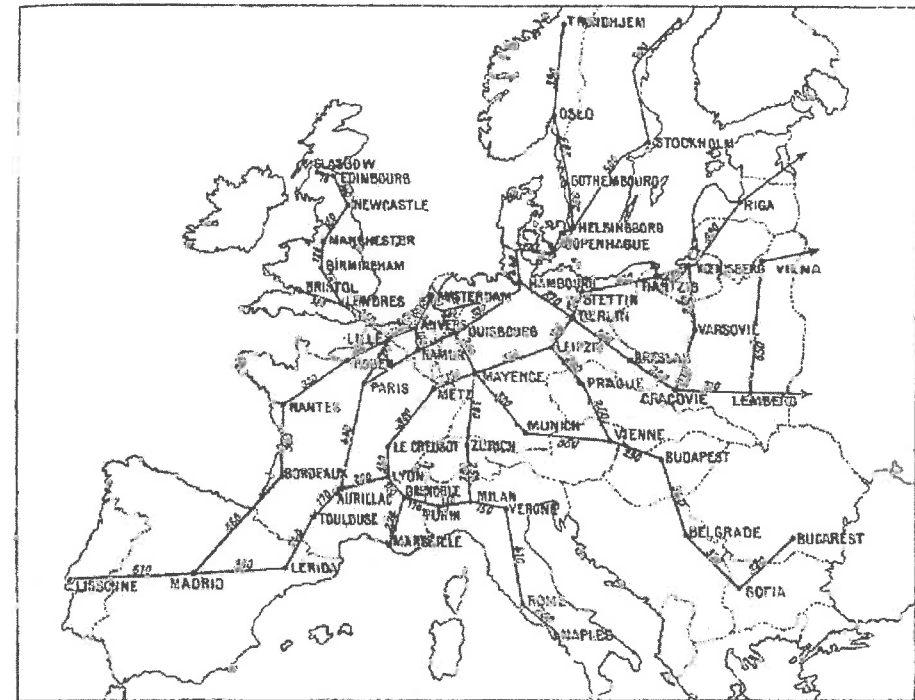


Figure 3.3 – George Viel's 400 kV network for Europe  
Source: Viel, "Étude," 743, figure 14.

Why Viel thought in terms of a *European* 400 kV network is more difficult to explain. Viel was the first to think in terms of a European system, but his paper does not explain what inspired him to think in European terms. Still, in retrospect, there appears to be a possible source of inspiration. The *Compagnie électrique*, Viel's employer, belonged to the *Société Giros et Loucheur*, partly owned by Louis Loucheur.<sup>71</sup> Taking his ideas on Europe and rationalization into consideration, and his activities in the electricity sector, it seems fair to assume that Louis Loucheur's ideas were of influence on Viel.

Viel clearly set a trend. Only one year later, in June 1930, Ernst Schönholzer championed an electricity plan for Europe.<sup>72</sup> The scheme of this engineer from Zurich resembled Viel's. Schönholzer agitated against the "waste" of coal, and argued for a better utilization of hydropower in Europe. He envisaged a grid interconnecting major consumption areas, in particular the cities of London, Berlin,

71 *Ibid.*, 378-381.

72 Ernst Schönholzer, "Ein elektrowirtschaftliches Programm für Europa," *Schweizerische Technische Zeitschrift* 23 (1930): 385-397.



**Table 3.1 – European network proposals in size and costs (including plants)**

Architect	Size	Costs (in 1930 Swiss Fr)*	Load	Saving per year
Georges Viel	3,000 km <sup>†</sup>	10.4 billion Fr.	79.5 million kW <sup>†</sup>	7 million kW
Ernst Schönholzer	3,800 km	25 billion Fr.	6.4 million kW	24 mil. tons of coal
Oskar Oliven	9,750 km	240 billion Fr.	20 million kW	-

\* Converted on basis of League of Nations Statistical Yearbook of 1930.

<sup>†</sup> New network necessary in France for national grid and high-capacity transmission lines into neighboring countries. Load represents the hydro-electric potential in Europe as a whole. Viel did not indulge in extensive calculations for his European scheme.

Paris, and Vienna.<sup>73</sup> While Viel assumed the use of 400 kV, Schönholzer calculated his plan based on a transmission voltage of 660 kV. The Channel would be traversed by use of an overhead transmission line between Calais and Dover.

A main difference concerned Schönholzer's invocations of Europeanist ideas. Although Schönholzer cannot be linked to any prominent Europeanist, he listed both the initiatives of Briand and Coudenhove-Kalergi as inspiration. He argued that Briand's plan for a United States of Europe needed "an electrical-economic program striving for a uniform and rational use of *white and black coal*".<sup>74</sup> According to Schönholzer, if Europeans could curb their internal political tensions, international HV transmission lines could serve as a symbol of a yet existing European "Kulturgemeinschaft".<sup>75</sup> Schönholzer remained a rather anonymous figure and he did not make a lasting impact on the electro-technical community.

But a German colleague of him did. In the same month, German engineer Oskar Oliven gave a General Address at the second World Power Conference in Berlin, in which he pleaded for a European electricity system.<sup>76</sup> Oliven, the Director-General of the *Gesellschaft für Elektrische Unternehmungen* (GESFÜREL) in Berlin, was the first to introduce this idea at an international event, which explains why his Address arguably had the biggest impact within the international electro-technical

73 Ibid.

74 "ein elektrowirtschaftliches Programm zum Zwecke der einheitlichen, rationellen Ausnützung der weissen und der schwarzen Kohle". Ibid., 385. "White coal" was an oft-used expression for hydro-electricity.

75 Ibid.

76 Oskar Oliven, "Europas Großkraftlinien. Vorschlag eines europäischen Höchstspannungsnetzes," *Zeitschrift des Vereines Deutscher Ingenieure* 74, no. 25 (June 21, 1930): 875-879. Oliven's contribution can also be found in the proceedings of the 1930 Berlin WPC. It was also published as a separate booklet, in French, German, and English, being "European Super Power Lines: Proposal for a European Super Power System" (General Address presented at the World Power Conference, Berlin, 1930).

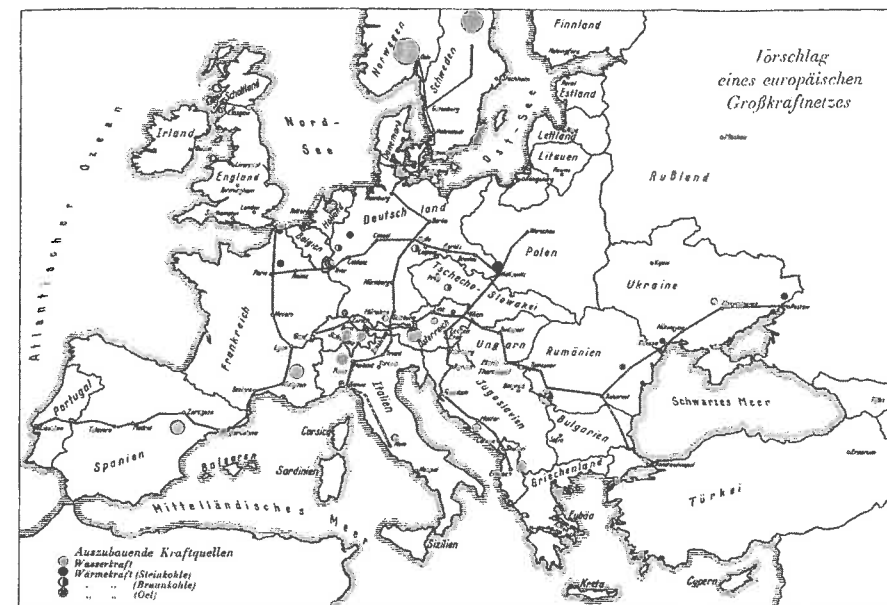


Figure 3.4 – Oskar Oliven's scheme for a European super power system  
Source: Oliven, "Europas," Used by permission of the World Energy Council, London, [www.worldenergycouncil.org](http://www.worldenergycouncil.org).

community.<sup>77</sup> In later years, any notion of a European network was often referred to as "the Oliven-plan".

In his Address, Oliven reminded his fellow engineers how electricity supply grew from a local to regional service. Like Viel and Schönholzer, he too looked at a further scale increase, arguing that it was time to look ahead:

[T]o-day we are facing the fact that exchange of energy and compensation of load are taking no heed of political frontiers. Now is the time for us to realize that we have not yet considered that this exchange and compensation is a question of the greatest importance for the whole of Europe and we have not yet done anything in this matter to ensure and organized co-operation of the political and economic factors of our Continent.<sup>78</sup>

He envisaged a network of approximately 9,750 km, consisting of five main lines (see Figure 3.4). Three lines ran from north to south: from Norway to Rome, from

77 Viel would present his paper only one year later at a CIGRE conference. See Georges Viel, 'Etude d'un réseau à 400.000 volts', in *Compte rendu des travaux de la sixième session de la C.I.G.R.E.* (Paris: Union des Syndicats de l'Électricité, 1931).

78 Oliven, *European*, 1.

Calais to Lisbon, and from Warsaw into Yugoslavia. These were complemented by two east-west lines: from Paris to Katowice, and from Rostov to Lyon. Together they combined a tight coupling between areas with hydro and coal-fired power stations on the one hand, and large centers of consumption on the other. Like the two other proposals, this European system would exploit existing energy sources to a better extent, and help to shave peak loads. It also allowed exploitation of hydropower all over Europe, whereby Oliven targeted the Danube and the Dalmatian coast as well.<sup>79</sup> Oliven hoped that his “super power lines” would open up these regions economically.

Technologically, Oliven did not see insurmountable problems. He pointed out that new 200 kV lines were built to eventually operate at 400 kV.<sup>80</sup> In his eyes, 400 kV thus was possible, or at least would soon be possible. Outside technological issues, Oliven expected that in particular “personal and political motives” were potential barriers.<sup>81</sup> Such motives earlier had prevented otherwise sound interconnections of plants and systems on smaller scales, and prevailed over economic-technical logic. Oliven, unlike Schönholzer, did not directly legitimate his idea by referring to plans for European unification, but by pointing to the economic advantages and efficiency of such a network. Still, Oliven recognized that the existing old European culture provided the most suitable grounds for an “Elektro-Verbund-Wirtschaft”.<sup>82</sup>

To Oliven, the effectuation of a general electricity plan for all of Europe was ‘a self-evident fact for the coming generations.’<sup>83</sup> This did however not imply that Oliven expected his “europäischen Großkraftliniennetzes” to be realized in the short term. Crucially, Oliven did not see his grand vision to be completed before the coming generations.<sup>84</sup> He recognized a growing number of interconnections between emerging national systems. Oliven regarded these “a very good interim solution for the period until the time when the difficulties standing in the way of a common European high voltage system are removed by international agreements”.<sup>85</sup> The first practical step towards a rational electricity supply in Europe was to create a European electricity network. Such an undertaking should be studied within the scope “of a very large organization”, argued Oliven.<sup>86</sup> Although not specifying

79 Ibid., 3-4.

80 Ibid., p.2. From 1929 on, RWE in Germany constructed 220 kV, which were also equipped to carry a voltage of 380 kV. See Boll, *Entstehung*, 46.

81 Oliven, *European*, 1-2.

82 Oliven, “Europas,” 879.

83 Oliven, *European*, 1.

84 Ibid.

85 Ibid., 6.

86 Ibid., 10.

particular organizations, he urged scientists, politicians and engineers at the conference to use their influence with their respective governments.

This appeal by Oliven resonated with ideas articulated by Dannie Heineman. In his foreword to *Les deux Europes* in 1929, he too proposed to take up the concept of an electrified Europe as object of a general study.<sup>87</sup> During UNIPEDE's third congress in September 1930, he made another point similar to Oliven. There, Heineman proclaimed that “the great revolution of tomorrow” was an international entente or cartel between electricity producers and distributors that could establish a comprehensive economic plan for the electrification of Europe.<sup>88</sup> However, Heineman added that such collaboration had to be preceded by national cooperation between electricity companies.

Heineman did not only have a message similar to that of Oliven, there was also a personal link. The two studied together and since 1922 Heineman's SOFINA owned a quarter of the shares of Oliven's enterprise GESFÜREL.<sup>89</sup> Thus, the two men most certainly knew of each other's lecture. Like Viel, Heineman also knew Loucheur. Together they set up a consortium for a traction system in Constantinople in 1911.<sup>90</sup> In 1927 Heineman, like Loucheur, had argued for an international cartel of electricity producers and distributors. According to him, only international collaboration enabled a technical and economic rational exploitation of natural resources.<sup>91</sup> Taken together, their visions about Europe and electricity combined encompassed both an economic mix as well as an ideological mix. While Oliven stressed the rationalizing effects of connecting consumption and production centers, Heineman hoped to raise Europe out its industrial and agricultural depressions.

The idea of a European network became known outside engineering circles. By 1929, Heineman was well-entrenched within the European movement, and was a crucial promoter. He was a member of Count Coudenhove-Kalergi's Paneuropa Union, which included also Briand and Loucheur, and involved in setting up its Economic Office.<sup>92</sup> Towards the end of 1930, Heineman gave several lectures in

87 Heineman, “Préface,” 18-19.

88 “la grande révolution de demain”. “Discours de D. Heineman,” in *Congrès international de l'UNIPEDE à Bruxelles, 1930, Compte rendu*. Cited in Brion, “Le rôle,” note 31. This event is also mentioned in Liane Ranieri, *Dannie Heineman, patron de la SOFINA: Un destin singulier, 1872-1962* (Brussels: Éditions Racine, 2005), 181-182.

89 GESFÜREL, “Contrat de collaboration,” 1922, file 5663, box 26, collection SOFINA, Belgium State Archives, Brussels (hereafter BSA). Oliven was already involved with SOFINA as representative on the management board since at least 1912.

90 Ranieri, *Dannie Heineman*, 68-73.

91 Heineman, “Internationale Elektrizitätswirtschaft,” *Wirtschaftshefte der Frankfurter Zeitung*, 1927, 26.

92 The Economic Office would be housed in SOFINA's office in Brussels. Ranieri, *Dannie Heineman*, 327.

German and French entitled "Sketches of a new Europe", in which he conveyed ideas from *Les deux Europes*.<sup>93</sup> This lecture, eventually published in three languages and two Europeanist journals, made both Heineman and his ideas more widely known – including his emphasis on the potential role of electricity.<sup>94</sup> Paul Hymans (1865-1941), Belgian minister of foreign affairs, was clearly inspired by Heineman's lecture.<sup>95</sup> In early 1931, Hymans sent the text around the Belgian diplomatic service in Europe.<sup>96</sup> Likely, Hymans also knew about Heineman's suggestion to start a study into the electrification of Europe, made in the foreword of Delaisi's book. Already in January 1930, Belgian embassies and consulates in Europe started to send information about electricity laws of their respective host countries to Hymans' Brussels ministry.<sup>97</sup> Soon, the Belgian foreign ministry took up Oliven's suggestion to bring such a study within the scope of a large organization; the League of Nations.

### The League and a European electricity network

The League's OCT studied electricity in an international context starting in 1921. The two 1923 Conventions were however hardly successful. A change of course took place after that. Since 1924 the Subcommittee dealing with electricity became a permanent one, renamed as the *Committee on Electric Questions* (CEQ). In ad-

93 Heineman, *Outline*. His lecture shows all elements of the typical European project of the Interbellum. Heineman hoped to tackle the economic and financial troubles of his time – heavily inspired by the America experience –, and give "the vision of an engineer", with technological integration reinforces the political authority. According to Heineman three crucial elements were needed for forging a "United States of Europe". Firstly, a financial organism comparable to the U.S. Federal System of Banks. Heineman thought that the Bank for International Settlements (BIS, 1930) would be a good starting point. Second, an administrative organism was needed, similar to the Interstate Commerce Commission. Thirdly, means of transport and communications had to expand between the European states, enabling a more optimal mode of trade.

94 It was issued in an English, German and French version. In 1930 it was published as "Esquisse d'une nouvelle Europe," *L'Européen* 7 (1931): 1-7. One year later it was again printed as "Das Wirtschaftliche Gleichgewicht Europas," *Panuropa* 6, no. 2 (1930): 48-56

95 Paul Hymans (1865-1941) studied law in Brussels, and acted as minister of foreign affairs in four Interwar cabinets (1918-1920, 1924-1925, 1927-1934, and 1935-1935). He was minister of economic affairs during the last two years of WWI, and represented Belgium at the Paris Peace Conference. He was the first chairman of the General Assembly of the League of Nations in 1920.

96 Letter by Hymans to diplomatic service, 19 January 1931, file 11440: Commission consultative des Communication et transit, Diplomatic Archive of Belgium, Brussels (Diplobel). Hymans introduced Heineman as "a friend from business".

97 Dossier "Documentation sur de la législation et la réglementation concernant l'importation et l'exportation et le transit d'énergie électrique dans divers pays," 1929-1933, file 4643: Pan-Europa, Diplobel. The dossier includes letters from ambassadors from Sweden, Greece, France, Latvia, Yugoslavia, Hungary, and Luxembourg.

dition, its competence increased as electrical engineers and other specialists now staffed the Committee.<sup>98</sup> The CEQ got in touch with the IEC, WPC and CIGRE, and offered them representation on the Committee.<sup>99</sup> Still, it did not have the expected result as the Committee was rather inactive. The CEQ gathered in 1927 and 1928, but without taking new issues into consideration. This was about to change in 1930 as ideals of a European electricity network were to gain momentum within the League of Nations.

In the slipstream of Briand's proposal and setting up the CEEU, the CEQ was about to rejuvenate its work. The Belgian government triggered this by making several proposals to the CEEU in December 1930. One of these related to international electricity exchanges.<sup>100</sup> In recent years, according to the Belgian proposal, the main industrial countries in Europe with common frontiers built cross-border electricity lines, and electricity exchange gained importance. Belgium thought that these exchanges were increasingly important, but at the same time ever more controlled – sometimes restricted – by national laws. The Belgian government stressed that "national legislations should not stand in the way of such a program and that a definite statute should be established to enable it to be carried into effect".<sup>101</sup> So far, the proposal stayed close to the earlier international Convention on electricity transmission and transit, whose disappointing results were regretted by the Belgian government.

But an important deviation from the previous ideas was that Belgium considered the issue – under present technical conditions – essentially a "continental one". Belgium opted for a European solution, which it expected to have immediate effects. The CEEU was therefore requested to study electricity transmission in a European framework. This was to be able to "already look forward to the time when these exchanges can no longer be limited to two neighboring countries, but when they will have to extend the whole continent, which will have to be covered

98 New members were the director of the Elektrobank, J. Chuard, the Swede and Director-General of Hydraulic Power and Canals F.W. Hansen, and the Frenchman G. Arbelot who held the position of Director of Hydraulic Power and Electricity Distribution in the Ministry of Public Works. LoN, *Advisory and Technical Committee for Communications and Transit: Minutes of the 6th session Held at Geneva, March 12th - 14th, 1924*, LoN doc, ser., C.196.M.61.1924.VIII (Geneva: LoN, 1924), 4 and 6.

99 "Permanent Committee on Electric Questions: Report on the Work of the First Session," 23 November 1926, registry file 14, box R-1144, LoN I could however not find any interferences or interruptions of IEC, WPC, and CIGRE in minutes of the Committee. In other words, although there was a live correspondence between those organisations and Geneva, physical representation cannot be confirmed.

100 LoN, *Proposals put Forward by the Belgian Government for the Agenda of the Commission of Enquiry for European Union, on December 11th, 1930*, LoN doc, ser., C.706.M.298.1930.VII / C.E.U.E.3 (Geneva: LoN, 1930), 1.

101 Ibid.

by an immense network of power distribution".<sup>102</sup> Belgium entrusted this task to the CEEU as it saw electricity networks as a part of European unification. The latter process was described in the proposal as "to lay the foundations is to establish a system of constant co-operation among the peoples of Europe", and "to strengthen the links uniting these peoples".<sup>103</sup> This thus included physical links as well.

The LoN Council and the CEEU accepted the Belgian proposal in May 1931.<sup>104</sup> Because of its technical nature, the matter was left to the CEQ, which was not without doubt when discussing the issue in June. In particular, OCT Secretary-General Robert Haas pointed out that not only technical aspects were of importance, but that "economic and legal aspects were far from negligible".<sup>105</sup> Chairman Silvain Dreyfus mentioned the two previous Conventions, which had been ratified by only a few members. He asked why a strictly European approach would receive a warmer welcome. The OCT nevertheless accepted to study the question, and proposed two things. First, as the Belgian request was concise and did not contain a plan for action, the OCT asked the Belgian government for more information. Only after receiving Belgium's additional information, a competent committee would be set up to study this question. This decision postponed concrete steps by several months.<sup>106</sup> Second, the OCT invited the League's Secretariat to prepare documentation on national legislation and international agreements in force in various European countries.

The Belgian government sent a note with additional information to the League's Secretariat on November 4, 1931.<sup>107</sup> In the note, the Belgian government clearly expressed which steps should be taken to arrive at an ambitious goal: the creation of a European electricity network. According to the Belgian government argued that there were two main advantages to such a project. First, a European electricity network created a "communauté d'intérêts" between countries, helping to consolidate peace. Second, such a network was the only possible way to an intensive and rational exploitation of Europe's energy resources. According to the note, proper coordination between the electricity policies of the various countries was lacking in the current situation.<sup>108</sup>

<sup>102</sup> Ibid.

<sup>103</sup> Ibid.

<sup>104</sup> LoN, *Resolution Adopted by the Commission of Enquiry for European Union Relating to Transport and Transit of Electric Power*, LoN doc, ser., C.417.M.173.1931.VIII (Geneva: LoN, 1931), 79-80.

<sup>105</sup> Ibid., 44.

<sup>106</sup> Ibid.

<sup>107</sup> "Note. Divers aspects de la question du transport et du transit de l'énergie électrique et notamment du problème de la création d'un réseau européen," 4 November 1931, registry file 9E, box R-2572, LoN The accompanying letter was address to Sir Eric Drummond, the League's Secretary-General at the time.

<sup>108</sup> Ibid, The French text read: "L'un des results de la creation d'un réseau électrique européen serait d'établir entre les différents pays une communauté d'intérêts bien propres à consolider la paix. La création d'un réseau électrique européen peut seule rendre possible l'exploitation rationnelle et intensive, de toutes les sources d'énergie de l'Europe, exploitation qui, à l'heure actuelle, est entravée par la manque de coordination des politiques électriques des différents pays."

The new note identified three distinct elements for study. The first concerned national legislations on production, transport, distribution, and exchange of electricity. The second element was of a technical nature, and entailed technical parameters and security regulations in network and power stations currently in force. This could help to determine standards for operating electricity networks in Europe. A last object of investigation was of an economic nature. The Belgian government wanted an inquiry into possibilities to mobilize international credit for certain countries, as well as a study of possible rates of return on capital investments.<sup>109</sup>

The OCT Secretariat responded cautious to this additional note. Secretariat members regarded the plan as complicated, and therefore proposed careful incremental steps. Given the technical, political and juridical complexity concerning a European electricity network, work should start by examining issues that could be solved with relative ease.<sup>110</sup> The intent to set up a committee of experts that should have representatives from both various governments as well as electricity producers was discussed again.<sup>111</sup>

The international electro-technical community was quick to express its interest. In February 1932, UNIPEDE president Marcel Ulrich wrote the League Secretariat about the pending study into a European electricity network. In his letter he explained that industrialists within his Union were very interested in creating a European electricity transmission network, since they expected eventually be called upon to realize and operate it.<sup>112</sup> In December 1932, then UNIPEDE-president Robert A. Schmidt enquired whether the special committee "for studying the Oliven project" had already been formed, and if so, who its members were.<sup>113</sup> The response from Geneva was negative. In addition, the OCT stressed that they planned to study a broader issue than Oliven's proposal.<sup>114</sup> The OCT meanwhile had become familiar with that latter scheme. While asking the texts of the Belgian proposal made to the CEEU, WPC Chairman Daniel Dunlop sent along a copy of paper by Oskar Oliven. He also offered his services for documenting electricity legislation in Europe.<sup>115</sup>

<sup>109</sup> Ibid., 2-4.

<sup>110</sup> The response stated that work should commence with "questions qui pourraient être résolues plus vite et plus facilement". Emil Hauswirth to Pietro Stoppani, 25 February 1932, registry file 9E, box R-2572, LoN

<sup>111</sup> Ibid.

<sup>112</sup> Marcel Ulrich to Pietro Stoppani, 16 February 1932, registry file 9E, box R-2572, LoN Ulrich wrote that "[l]es industriels groupés au sein de notre Union sont, en effet, des plus directement intéressés au projet de création de réseaux européens de transport d'énergie électrique, puisque ce sont eux qui seront éventuellement appelés à les réaliser et à s'en servir".

<sup>113</sup> "pour l'étude du projet Oliven." R.A. Schmidt to Robert Haas, 7 December 1932, registry file 9E, box R-2572, LoN Schmidt had succeeded Ulrich in July 1932. See Lyons, *75 Years*, 110.

<sup>114</sup> Robert Haas to president of UNIPEDE, 1 December 1932, registry file 9E, box R-2572, LoN

<sup>115</sup> Daniel Dunlop to Robert Haas, 16 July 1931, registry file 9E, box R-2572, LoN

The Belgian government announced in June 1932 that “its study of the questions not being at an end”.<sup>116</sup> In other words, it anticipated to supply more information on the issue. This once more postponed appointing the special committee. Meanwhile the Secretariat found the WPC willing to help collecting information on European electricity statistics and legislation.<sup>117</sup> The chairman sent Siegel's *Die Elektrizitätsgesetzgebung der Kulturländer der Erde*, and additions to that book from national committees of the WPC.<sup>118</sup> But in a return letter Gijsbert van Dissel, the secretary of the CEQ, hinted at the unfavorable perspectives of the project. Van Dissel wrote that the original plan was to send out a questionnaire to acquire statistics, plans, and legislation of concerning countries. This was cancelled because of “the general economic crisis and the fact that most countries are at the present moment suffering from an over-production of energy and a decrease in consumption”.<sup>119</sup>

### Albert Thomas' European public works

The economic crisis did not go unnoticed in Geneva. Many contemporaries interpreted the October 1929 Wall Street crash as a turning point in Europe's economic fortunes, not in the least because it coincided with a renewed effort to settle reparation issues.<sup>120</sup> Although many European countries faced similar and interrelated problems, they nevertheless chose to tackle them nationally.<sup>121</sup> 1929 witnessed a growth of protectionist measures. Resolutions on relaxing commercial and tariff policy as agreed on at the International Economic Conference of 1927 did not stand.<sup>122</sup> The overall tense economic situation led to a drastic increase of unemployment in European countries.

The depression inspired Albert Thomas, the director of the International Labour Organization (ILO), to design a comprehensive plan for the construction

116 LoN, *Various Communications by the Secretariat: 3. Transmission in Transit of Electric Power*, LoN doc, ser., C.531.M.265.1932.VIII (Geneva: LoN, 1932), 27.

117 Ibid.

118 C.H. Gray to G, van Dissel, 21 March 1932, registry file 9E, box-R-2572, LoN The concerned book is Siegel, *Die Elektrizitätsgesetzgebung*.

119 G, van Dissel to C.H. Gray, March 1932, registry file 9E, box-R-2572, LoN

120 Clavin, *The Great*, 88-89, & 99.

121 Ibid., 5.

122 LoN, *Work of the Second Conference with a View to Concerted Economic Action: Statement by M. Colijn*, LoN doc, ser., C.144.M.45.1931.VII (Geneva: LoN, 1931), 13.

Table 3.2 – Unemployment in European countries, 1928-34 (in thousands of men)

Country	Austria	Belgium	Czecho-slovakia	France	Germany	Poland	Italy	Sweden
1928	182	5,300	39	16	...	126	324	10.6
1929	192	5,600	42	10	1,899	129	301	11.2
1930	243	16,500	105	13	3,076	227	425	12.2
1931	300	41,100	291	64	4,520	300	734	17.2
1932	378	71,800	554	301	5,575	256	1,006	22.8
1933	406	62,400	738	305	4,804	250	1,019	23.7
1934	370	72,300	677	368	342	2,718	964	18.9

Source: B. R. Mitchell, *European historical statistics, 1750-1920* (New York: Columbia University Press, 1975), 166-172.

of a wide range of European public works.<sup>123</sup> His public works included a system of railways and highways, as well as an electricity transmission network. For several reasons, Thomas saw these public works as an apt solution to the problems Europe was facing. First, the construction of public works provided much needed jobs in a time of high unemployment. Second, it offered Central and Eastern European countries a prospect for further industrialization. This line of thinking was strongly influenced by Delaisi's *Les deux Europes*.<sup>124</sup> Third, the increase and improvements of infrastructures led to more mobility and market formation in that part of Europe. Thomas also hoped to “induce investors to put out money which at present time they are keeping hidden in their stockings”.<sup>125</sup> A final reason for Thomas was to create “the elements to construct a New Europe”.<sup>126</sup> At the same time, the plan fitted well with ILO's – and Thomas' – interest in rational organization and planning.

This intended creation of a New Europe resembled an earlier ideal of Thomas, but only on a larger scale. During the early phase of mobilization during WWI, Thomas was entrusted with organizing a productive war economy, working to-

123 Albert Thomas (1878-1932) was born in Champigny-sur-Marne, as son of a baker. An excellent pupil, he went to study history and literature at the *École normale supérieure* in Paris. When Thomas moved into municipal politics in 1904, he already was on his way to become a spokesman for French Socialism and the leading reformist of the socialist party. Several biographical publications on Thomas and his ideas have appeared. Presumably the earliest to appear is B.W. Schaper, “Albert Thomas: Dertig jaar Sociaal Reformisme” (PhD diss., Leiden University, 1953). A French edition appeared in 1959. A more recent biography is Denis Guérin, *Albert Thomas au BIT, 1920-1932: De l'internationalisme à L'Europe* (Geneva: Institut européen de l'Université de Genève, 1996).

124 Schaper, *Albert Thomas*, 307-308.

125 Albert Thomas to Hon. R.H. Brand, Messrs. Lazard Bros, & Co Ltd, 30 May 1931, fonds Cabinet Albert Thomas (hereafter: CAT), file 6B.7.3, Archives of the International Labour Office, Geneva (hereafter: ILO).

126 “l'un des éléments de construction d'une Europe nouvelle.” Note by Banque générale pour l'industrie électrique, “Réseaux internationaux,” 14 December 1931, CAT file 11A.2.3, ILO.

gether with Louis Loucheur. When he became minister of armaments, Thomas closely collaborated with industrialists and directed the French war economy to significant increased production. He wondered how the “spirit of war”, which caused a new sense of national belonging, could be transferred into peacetime. Thomas proposed creating “a new France”, whereby the close cooperation between state, industry, and labor was continued.<sup>127</sup> According to historian Martin Fine, Thomas used the war as vast testing laboratory where he applied new methods on various areas of economic and social activity.<sup>128</sup> Albert Thomas brought these experiences to Geneva in 1919 as the first director of the ILO. Thomas made sure that its Secretariat had a relative autonomous position within the Organization.<sup>129</sup>

His ideas further were shaped by his growing interest for optimization and scientific management. He already had observed the introduction of Taylorist practices in France.<sup>130</sup> During a trip to the United States, Thomas came in touch with progressive businessmen Henry Ford and Edward A. Filene. Both exposed the ILO-director to American ideas on scientific management and rationalization.<sup>131</sup> With Filene’s financial support, he set up the International Management Institute (IMI) in 1926. This organization, headed by Thomas’ ILO colleague Paul Devinat, collected and spread knowledge about scientific management.<sup>132</sup> Thomas linked rationalization with the economic future of Europe, too. In an introduction to a handbook on scientific management, he wrote that this novel approach was a revelation for many Europeans, who saw the economic progress of the United States as a threat to Europe.<sup>133</sup> Thomas, with Devinat, applauded the 1927 resolution of the International Economic Conference that stressed the need of rationalization in Europe.

Two years later, Albert Thomas also welcomed Briand’s initiative, albeit critically. Thomas appreciated the momentum created by his former prime minister.

127 Martin Fine, “Albert Thomas: A Reformer’s Vision of Modernization, 1914-’32,” *Journal of Contemporary History* 12, no. 3 (1977): 551.

128 *Ibid.*, 549.

129 Schaper, *Albert Thomas*, 206ff. The ILB was divided into three parts; a diplomatic division preparing general conferences, a political division communicating with organisations of employers and workers, and a research division taking care of inquiries. Thomas’ heart in particular laid with the latter. Emil Walter-Busch, “Albert Thomas and Scientific Management in War and Peace, 1914-1932,” *Journal of Management History* 12, no. 2 (2006): 219.

130 *Ibid.*, 214.

131 Fine, “Albert Thomas,” 554. For Filene and his European activities see de Grazia, *Irresistible*, 130ff.

132 This history is best described in Walter-Busch, “Albert Thomas,” 219-222.

133 Scientific management “a été la révélation pour un grand nombre d’Européens que ces progrès économiques de l’Amérique menaçaient la situation du vieux continent et qu’il n’y avait de salut pour lui, à son tour, que dans une rationalisation de la production”. Paul Devinat, *L’Organisation scientifique du travail en Europe* (Geneva: Bureau International du Travail, 1927), VII. The introduction to this book was written by Thomas.



Figure 3.5 – Albert Thomas, 1878-1932  
Source: League of Nations Photo Archive. Used by courtesy of United Nations Office, United Nations Library, Geneva.

He applauded that European unification gained a political dimension, but he disapproved the adopted method of the LoN. He in particular felt that other Geneva institutions – like ILO – were passed over in the process that led to the establishment of the CEEU.<sup>134</sup> He blamed Aristide Briand for not inviting the most prominent international officials to the first discussions in 1929 – probably including him.<sup>135</sup> In addition, he was skeptical about concrete results, as Briand’s proposal seemed ill-prepared.<sup>136</sup> The Briand initiative and the resulting Commission of Enquiry nevertheless became the focal point of Thomas’ European efforts, as he tried to provide a more concrete and technical focus to its work.

In April 1931 Thomas presented a memorandum about unemployment in Europe to the ILO Secretariat, which he wished to send to the CEEU. He wanted to install two sub commissions; one studying the possibility of creating a European Labor Exchange, and another one to launch a vast program of European public

134 Guérin, *Albert Thomas*, 65.

135 Schaper, “Albert Thomas,” 304.

136 That was characteristic for Briand according to Thomas. He once said of Briand that he did not prepare his speeches by searching in books and notes, but by dreamingly staring at the smoke of his cigarette (“Lui, il prépare ses discours non pas en cherchant dans les livres, non pas en cherchant dans des notes. Il regarde la fumée de sa cigarette qui s’envole, et il rêve à l’idée nouvelle à laquelle il peut s’attacher”). Cited in Guérin, *Albert Thomas*, note 31.

works.<sup>137</sup> At that time many national governments issued public works projects to relieve unemployment. These programs not only provided jobs. The newly built railways, roads, drainages and other works should benefit the whole society. Thomas's ambition was to coordinate these national projects into large-scale European schemes. When geared to one another, public works not only benefited the country of construction, but also neighboring countries, Thomas argued. He also hoped that countries would order equipment and material from each other.<sup>138</sup> At the same time, wrote Thomas, it "would thus develop that spirit of collaboration, that European spirit which is the object of the Commission of Enquiry for European Union to foster."<sup>139</sup> His three prime projects were an extensive international road system<sup>140</sup>, a system of navigable waterways, and finally an international electricity transmission system. Thomas, like others before him, envisaged this network to work at 400 kV. He also recognized the current work of the OCT and stressed the importance of the Belgian memorandum.

But the responses from the ILO Secretariat were rather skeptical.<sup>141</sup> Thomas' co-workers challenged the economic viability of his program, and preferred a national framing over his European approach.<sup>142</sup> Thomas decided to include these comments in the memorandum which he submitted to the CEEU. It was discussed by the CEEU Unemployment Committee in early July 1931. This Committee was created two months before, in close collaboration with ILO.<sup>143</sup> Generally speaking, it endorsed the intended positive effects of the proposed scheme of European public works by Thomas. It invited countries to propose plans within this program. In addition, the Committee stressed the need of international collaboration, and the requirement of capital and credits.<sup>144</sup>

Thomas' vision of European public networks met considerable opposition from Pietro Stoppani, LoN Secretariat member and head of the Economic section. Stoppani told Thomas that his plan encompassed "projets de luxe", and that only

137 LoN, *Memorandum from the Director of the International Labour Office on Certain Questions Dealt with by that Office, of Special Interest to European States*, LoN doc, ser., C.39.M.19.1931.VII (Geneva: LoN, 1931).

138 LoN, *Unemployment: Proposals of the International Labour Organisation*, LoN doc, ser., C.275.M.127.1931.VII, Annex 14 (Geneva: LoN, 1931) It is explicitly mentioned that the proposals to combat unemployment were "made on the Director's responsibility", being Thomas.

139 Ibid.

140 The history of Thomas' efforts for the road network has been disclosed in Frank Schipper, *Driving Europe: Building Europe on Roads in the Twentieth Century* (Amsterdam: Aksant, 2008).

141 Thomas wrote about the response to Raoul Richard. Thomas to Richard, 8 May 1931, CAT file 6B-7-3, ILO.

142 Guérin, *Albert Thomas*, 71.

143 LoN, *Mémoire du Bureau International du Travail. Genève, le 29 juin 1931*, LoN doc, ser., C.E.U.E./C/1 (Geneva: LoN, 1931), 1.

144 LoN, *II. Public works*, LoN doc, ser., C.395.M.158.1931.VII (Geneva: LoN), 56-57

public work programs in backward countries should be considered. In addition, Stoppani regarded improving roads a better stimulus for local economies than electricity networks.<sup>145</sup> Stoppani left Thomas under the impression that the LoN would thwart his activities. To the ILO director, the LoN was unwilling to take the initiative. It let him to assume the LoN was not the proper route to his European networks. He decided to rely on engineers instead.<sup>146</sup>

Therefore Thomas assembled a group of experts around him from engineering and finance. He contacted Marcel Ulrich, and other prominent French engineers Ernest Mercier, and Henri Cahen, and also Dannie Heineman. In December 1931 he met Georges Lemaître, delegated administrator of the *Banque Générale pour l'Industrie Électrique*, who offered his services. The *Banque Générale* collaborated with *Elektrobank* and *Motor-Columbus*, and was active in Germany, Argentina, France, Italy, Poland, and Yugoslavia.<sup>147</sup> Besides being a financial institute the *Banque Générale* had an engineering department, which frequently conducted technical studies.<sup>148</sup>

Lemaître was however convinced that a "super network" at 400 kV was not an "immediate technical and economic necessity".<sup>149</sup> According to Lemaître, the advantages of 400 kV were only useful for transmitting electricity over very long distances of around 1,000 km.<sup>150</sup> He argued that a dense patchwork of networks was developing, but mainly within national boundaries. What was necessary according to Lemaître was to "weld" together these national networks.<sup>151</sup> This was not far from what Oliven had proposed. Although connecting centres of production and consumption made sense from an economic point of view, Lemaître also saw a political obstacle to Thomas' network. Lemaître argued that it was politically unacceptable to any state to be dependent on another country for meeting one's energy needs. What he therefore proposed was a reduced programme, limited to bilateral projects between "horse-powered" countries. Such an undertaking could be carried out rapidly and still create employment.<sup>152</sup> The French electrical engineers, with whom Thomas was in touch, backed Lemaître's opinion on 400 kV. Marcel

145 Thomas wrote Richard about his episode. Thomas to Ricard, 18 July 1931, CAT file 6B-7-3, ILO.

146 Ibid. English translation reads: "We will not be able to succeed if it were not on behalf of the technicians and the great groupings of interests of the coherent and effective initiatives".

147 "Électrification de l'Europe. Note sur une conversation avec M. Lemaître, administrateur-délégué de la Banque Générale pour l'Industrie Électrique," 10 December 1931, CAT file 11A.2.3.1, ILO.

148 Georges Rabinovitch, "Électrification de l'Europe. Note sur une conversation avec M. Lemaître, administrateur-délégué de la Banque Générale pour l'Industrie Électrique," 10 December 1931, CAT file 11A.2.3.1, ILO.

149 Ibid., 2-3.

150 Ibid., 3.

151 "Ce qu'il faut, par conséquent, c'est provoquer la soudure des réseaux nationaux." Ibid.

152 Ibid., 4.

Ulrich was one of them.<sup>153</sup> At a small conference on December 12, Thomas again discussed options with Lemaître. Thomas underlined what he regarded the two prime aims of his plan: to reduce unemployment, and to create a “New Europe”. Lemaître, on the other hand, reiterated his thoughts on using 400 kV.<sup>154</sup> Thomas was clearly disappointed seeing his original 400 kV plan amended. Describing this episode to Henri Cahen, Albert Thomas wrote that “our electrician friends have thrown me a small disillusionment”.<sup>155</sup>

### Responses to the plan

Until now, I have only highlighted those directly involved in plans for a European electricity system. But how did engineers, industrialists and politicians not directly involved in these initiatives look at the notion of a European electricity network? Although it is hard to provide a definitive overview of opinions, this section reviews two rather insightful sources. The first is a report by the LoN on the WPC in 1933. A LoN official attended this meeting and actively documented the response by engineers to the plan. Second, the Diplomatic Archive of Belgium harbors a collection of responses from domestic actors. Together, they provide more insight in arguments used by both proponents and opponents, both internationally and domestically.

Domestically, the Belgian proposal to CEEU met significant opposition.<sup>156</sup> Politically, the Minister of Public Works reprimanded Hymans for launching such an initiative without consulting the Minister of Defense, and industrial circles. Especially that latter group made its grievances heard. In general, industry protested against possible dependency on foreign-generated electricity and the potential harm to Belgian economic interests. The *Comité Central Industriel*, an employer’s association, contended that electricity imports were far from desirable from the viewpoint of both national economy and defense. These arguments were in line with Lemaître’s expectations. The *Comité* contended that if the “Oliven project” was

153 Thomas to Dannie Heineman, 29 December 1931, CAT file 6B.7.3, ILO.

154 Report of a conference on “Réseaux internationaux,” 12 December 1931, CAT file 11A.2.3, ILO.

155 “nos amis électriciens m’avait jeté une petite douche.” Thomas to Henri Cahen, 29 December 1931, CAT file 6B.7.3, ILO.

156 Besides the groups and associations named in this section, others wrote the Ministry of Foreign Affairs. This included the *Compagnie Générale d’Entreprises Électriques et Industrielles, Union Belge des Producteurs d’Électricité, Union des Villes et Communes Belges*. The same archival material has been used in Ranieri, *Dannie Heineman*, and I kindly thank Miss Ranieri for pointing my attention to these files.

carried out, “Belgian interests” should at least play a role in its building.<sup>157</sup> More straightforward was the opinion of the *Association des Constructeurs de Matériel Électrique de Belgique*. It wrote that the effect of a European electricity network was nothing less than the “the death of our extensive electrical industry”.<sup>158</sup>

Arguably the most interesting comments on the proposal came from the *Union des Exploitations Électriques en Belgique*. This Union represented the interests of private concession-holding undertakings that exploited power stations, distribution networks, tramways and electrified railways.<sup>159</sup> It argued that high voltage technology did not allow establishing a European network according to plans put forward by engineers. In other words, the *Union* regarded 400 kV as technologically unfeasible. From a financial point of view, the *Union* regarded the calculated returns on investments as very optimistic, especially considering the general economic situation in 1932. The *Union* thus concluded that creating a European electricity network was not feasible from both a technical and financial point of view, and therefore not interesting for Belgium.<sup>160</sup> The influential engineer colonel Emil Weyl, administrator of Electrobél and board member of SOFINA, also deemed the prevailing economic situation unsuitable to begin such an undertaking. He nevertheless expressed his full support for the LoN study into the political and administrative organization of such a network.<sup>161</sup>

The stress placed on unfavorable economic circumstances can be illustrated by fate of an attempt to float a new company, the *Compagnie Européenne pour Entreprises d’Électricité et d’Utilité Publique* (EUROPEL). This joint venture between SOFINA, *Elektrobank*, and the *Compagnie Italo-Belge pour Entreprises d’Électricité et d’Utilité Publique* (Italo-Belge), three of the large *Unternehmergeschäfte* in Europe, was signed in June 1929.<sup>162</sup> EUROPEL would finance and setup electricity systems in for example Silesia and Hungary.<sup>163</sup> But this never materialized. In 1933 the partners decided to liquidate EUROPEL, as SOFINA was unable to place the

157 “Si donc l’on juge opportun de ne pas pousser le projet Oliven, il est non moins essentiel de veiller à ce qu’il ne soit pas réalisé par d’autres en dehors des intérêts belges.” Note by the *Comité Central Industriel*, 13 January 1931, File 4643 II, Diplobel.

158 “la mort de notre grosse industrie électrique [...]” Note by the *Association des Constructeurs de Matériel Électrique de Belgique*, 4 March 1932, File 4643 II, Diplobel.

159 Ginette Kurgan van Hentenryk, “Le régime économique de l’industrie électrique belge depuis la fin du XIXe siècle,” in *1880-1980*, ed. Cardot, 120.

160 Director-General and President of the *Union des Exploitations Électriques en Belgique* to Mr. Van Caenegem, 24 November 1931, File 4643 II, Diplobel.

161 Weyl to Van Caenegem, 16 March 1932, File 4643 II, Diplobel.

162 Draft statutes of “Cie Européenne pour Entreprises d’Électricité et d’Utilité Publique ~ ‘Europel,’” 2 June 1929, Box 12, File 5890, collection SOFINA, BSA.

163 Brion, “Le rôle,” 231.



company on the Brussels Stock Exchange and raise the necessary capital.<sup>164</sup>

Similar arguments were expressed by engineers at the 1933 sectional meeting of the WPC, held in Stockholm, but they also added new arguments and visions on how to organize electricity supply in Europe.<sup>165</sup> Despite its apparent pessimism, League Secretariat members had taken up the invitation to visit the meeting. The report of the conference provides an interesting insight into the different prevailing visions on how to organize electricity supply in Europe. The best-known proposal was the one presented by Oliven. Generally speaking, engineers agreed that such a network enabled a better economic mix and load factor.<sup>166</sup> But a great divergence between countries with well-developed electricity infrastructure, and those still building one, also had to be taken into account. According to the report, several engineers therefore expressed doubts about the possibility to immediately create a European electricity network. Not only would it need a vast amount of capital, lesser developed countries were not ready for such a “rational development”.<sup>167</sup>

But to many engineers Oliven’s plan was a theoretical one. Some remarked that transmission lines in Oliven’s plans hardly matched with existing ones. Several engineers regarded developing a European system through gradual growth a more practical alternative; from local and provincial networks to national ones, before arriving at a “supranational network”.<sup>168</sup> There seemed to have been a consensus on the argument that international connections should be built first between regional and national networks. Cross-border electricity exchange could cover immediate needs before a European system was in place.<sup>169</sup> According to the report this was the most probable development. This was in line with Lemaitre’s vision, but also corresponded with Oliven’s own expectations.

Based on these sources, it seems as if a “super” European network was seen as undesirable by some, and by many others as impossible in the short term. In Belgium, national economic interests clearly were an important issue. But elsewhere the notion of international collaboration was not refused, nor was the planning on a European scale. Rather, it was technological and economic arguments that led many engineers to believe the scheme was not yet do-able. The more grad-

164 Newspaper clipping from unknown paper, “Compagnie Européenne pour Entreprises d’Electricité et d’Utilité Publique – EUROPEL. Assemblée extraordinaire du 31 mai 1932,” 1 June 1932, Box 12, File 5890, collection SOFINA, BSA.

165 “Session spéciale de la Conférence Mondiale de l’Énergie, Stockholm 1933,” n.d., registry file 9E box R-4286, LoN The report is without an author’s name, but likely written by Gijssbert van Dissel, then the responsible Secretariat member for the CEQ.

166 Ibid.

167 Ibid.

168 Ibid.

169 Ibid.

**Table 3.3 – Electricity exports relative to national production, indexed (base year = 1925)**

	1926	1927	1928	1929	1930	1932	1933	1934	1937
Germany	100.3	100.6	100.5	100.3	100.5	104.9	100.7	99.0	
France	99.9	100.2	100.2	100.4	100.3	99.7	99.5	99.6	99.7
Netherlands	100.5	100.1	99.9	99.9	99.8		99.0		
Austria	100.1	101.2	102.9	105.1	104.2	109.0	110.2		112.6
Switzerland	100.1	100.1	100.0	100.0	100.0	99.8	99.8	99.9	99.9
Czechoslovakia			105.0	101.8		99.0	99.0	99.0	

Calculated from: UNIPEDE, *Production et de la Distribution*, various years; and Kittler, *Der internationale*.

**Table 3.4 – Electricity imports relative to national consumption, indexed (base year = 1925)**

	1926	1927	1928	1929	1930	1932	1933	1934	1937
Denmark	99.9	101.7	101.0	100.2	101.1	102.7	100.4		100.0
Germany	99.6	99.7	99.7	99.8	99.9	99.4	101.6	99.0	
France	100.2	100.3	100.3	100.3	100.3	100.2	100.0	100.0	100.0
Netherlands	100.0	100.0	100.5	104.2	103.6		101.7		
Norway	100.1	109.8	100.1	100.3	99.0				
Austria	99.5	99.7	100.4	104.7	100.6		100.5		155.0
Switzerland	101.2	100.6	101.0	104.0	106.2	99.2	99.1	99.1	99.2
Czechoslovakia	99.9	99.8	99.7	99.7	99.0	99.0	99.6	99.6	

Calculated from: UNIPEDE, *Production et de la Distribution*, various years; and Kittler, *Der internationale*.

ual approach, by building interconnections between regional and national networks was seen as the way forward, towards a European system. These opinions matched those expressed by the engineers consulted by Albert Thomas. They did not see the immediate need and possibility of a 400 kV network, and therefore proposed to use the emerging national networks as a backbone for a future and gradually emerging system.

The available statistics of international electricity flows for this period show that this vision made sense. Stronger even, international exchange expanded alongside national production. Since 1925 electricity exports represented only a few per cent of total national production – except for Switzerland, and gradually Austria. In the period 1925-1937, the relative amount of electricity flowing either in or out European countries hardly altered. Considering the growth of domestic production between 1925 and 1937 (see Table 2.3), electricity production more than doubled in many countries despite a severe economic crisis. But Tables 3.3 and 3.4 show the relative importance of import and export did not change sub-

stantially. In other words, whereas production increased, electricity exports rose accordingly – with Austria as the sole exception (see Table 3.5). This seems to suggest a status quo of national versus international developments; both national networks and international exchange grew gradually and hand-in-hand.

**Table 3.5 – Electricity exports as percentage of national production**

	1926	1927	1928	1929	1930	1932	1933	1934	1937
Belgium	-	-	0.24	0.62	0.64	-	0.37	0.29	-
Germany	0.58	0.71	0.66	0.55	0.66	2.61	0.74	-	-
France	0.75	0.97	1.00	1.15	1.12	0.62	0.41	0.48	0.62
Netherlands	0.00	0.00	0.00	0.00	0.00	-	-	0.00	-
Austria	1.00	1.98	3.57	5.58	4.74	9.09	10.17	-	12.33
Switzerland	27.16	25.15	25.05	23.86	23.33	19.03	20.03	21.54	22.62

Calculated from: UNIPEDE, *Production et de la Distribution*, various years; and Kittler, *Der internationale*.

### The demise of the projects

In August 1932 the Belgium government sent a third and complementary note to Geneva.<sup>170</sup> The contrast with its previous memorandum was remarkable. Gone were projections of a European network and invocations of its potential contributions to stability in Europe. The aspect of system-building seemed to be replaced by a more regulatory approach. Now, the main focus was on the study of two issues; one, problems relative to the political and administrative regime of electricity, and second, issues related to technologies of production and transmission, and economic aspects of their exploitation.<sup>171</sup> The Belgian government nevertheless suspected that these issues could be addressed best in the European framework of the CEEU.<sup>172</sup> The primary object was to draw up European conventions. Studying both issues should lead to a road map which allowed for a gradual development of an international electricity system.<sup>173</sup> In that light, the CEEU sent a letter to all participating European governments in May 1933, asking to supply the Secretariat with information on existing power stations, existing systems, and planned expan-

170 "Suggestions préliminaires et informations complémentaires relatives à la question du transport et du transit de l'énergie électrique," 13 August 1932, registry file 9E, box R-2572, LoN

171 Ibid.

172 Ibid.

173 Ibid.

sion.<sup>174</sup> The original Belgian proposal and the two additional notes were included with the letter. With the emphasis on a European network downplayed, the final aim of the study became how to establish a European liberal exchange regime for electricity.

At the 1933 OCT meeting it became clear that the present circumstances were unfavorable. This was directly related to the economic depression, which according to the CEQ caused an overproduction of electricity.<sup>175</sup> The CEQ therefore decided that "the present situation [does] not render it possible to anticipate in the near future either the institution of a more liberal regime for the exchange of electric power or the constitution of a European electric system."<sup>176</sup> But political tensions in Europe were also rising. This was underlined by resignation of all German OCT members in 1933. However, the CEQ decided that the documentation should be updated until a more favorable moment presented itself.

The Secretariat reported in 1935 that a detailed study was being prepared, despite the unfavorable conditions.<sup>177</sup> The study reviewed the structure of each country's electricity sector. In addition, it included an abstract of existing laws on the import and export of electricity. In 1937 the Secretariat expressed that despite the deteriorating political situation in Europe the study would be finished and presented to the CEQ in "the near future."<sup>178</sup> This optimism was shattered the year after. Because of political changes in Europe, and in particular in Central and Eastern Europe, peaceful perspectives of international electricity exchanges in Europe had become very uncertain – to say the least.<sup>179</sup> Therefore the study was abandoned. In August 1939, three weeks before Germany's invasion of Poland, it was registered into the LoN's archive and never to be consulted for its intended purpose.<sup>180</sup>

Albert Thomas' idea of a European electricity network had already suffered

174 "Transmission and Transit of Electric Energy. Circular letter no.81," 4 March 1933, registry file 9E, box R-4286, LoN Responses were received from Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Hungary, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Switzerland, Turkey, Romania, the United Kingdom, and Yugoslavia. For an overview see LoN, *Transport and Transit of Electric Power and Regime of the International Exchange of Electric Power in Europe*, LoN doc, ser., C.98.M.33.1934.VIII (Geneva: LoN), 97ff.

175 LoN, *Memorandum of the Secretary-General of the Committee on Transport and Transit of Electric Power and the Regime of International Exchange of Electric Power in Europe*, LoN doc, ser., C.C.T.566 (Geneva: LoN), 97.

176 LoN doc, ser., C.98.M.33.1934.VIII, 22.

177 Ibid. 38.

178 LoN, *Transport and Transit of Electric Power, and Regime of the International Exchange of Electric Power in Europe*, LoN doc, ser., C.380.M.256.1937.VIII (Geneva: LoN), Annex 23.

179 LoN, *Transport and Transit of Electric Power, and Regime of the International Exchange of Electric Power in Europe*, LoN doc, ser., C.266.M.159.1938.VIII (Geneva: LoN, 1938), 13.

180 v.B. (unknown initials) to Mr. Lukac, 8 August 1939, registry file 9E, box R-4286, LoN

a major setback in December 1931, after his expert-advisors denounced the use of 400 kV. Thomas wrote Heineman that he had not given up on his "European electricity union". He asked Heineman's advice on whether to follow Lemaître's suggestion to forge collaboration between Western European electricity producers and interconnect national systems.<sup>181</sup> But Thomas also moved on to a new venture. Since early 1932, he took significant interest in Francis Delaisi's *Plan quinquennal européen*, a European five-year plan. Thomas took part in a meeting on this plan in January 1932, organized by the *Comité Fédérale de Coopération Européenne*.<sup>182</sup> Like before, Delaisi stressed the need to bridge the divide between Europe A and Europe B, but now his main focus was on constructing roads in Eastern Europe.<sup>183</sup> This would help lowering transport costs, which in turn made agricultural products more competitive on the world market.<sup>184</sup> A report on the electrification of Central Europe was written by a French engineer, but it stressed that it was primarily to help developing transport infrastructures, most notably rail.<sup>185</sup>

What was left of ILO's efforts on European public works, including its electricity part, died with its inspirer Albert Thomas on May 8, 1932. In September 1932, the reports of CEEU's Unemployment Committee were handed over to a commission preparing the Monetary and Economic Conference, to be held in London one year later.<sup>186</sup> National governments filed proposals that hardly resembled Thomas' initial schemes. In addition, only Central and Eastern European countries' plans were proposed. They included plans for new roads and railway connections towards adjacent countries, but the overall European character was lost.<sup>187</sup> The International Conference on Monetary and Economic Questions in 1933 eventually rejected the international public works program as a whole. Without ambiguity the United States – the most important creditor at the time – stressed that every

181 Thomas to Heineman, 29 December 1931, CAT file 6B.7.3, ILO.

182 "Comité Fédérale de Coopération Européenne, Commission agricole et des travaux publics," 30 January 1932, CAT file 11C.7.3, ILO. The Comité Fédérale was created in 1928 by French mathematician Émile Borel. See Jean-Michel Guieu, "Le Comité fédérale de Coopération européenne: L'action méconnue d'une organisation internationale privée en faveur de l'union de l'Europe dans les années trente (1928-1940)," in *Organisations internationales*, ed. Schirmann, 73-91.

183 Delaisi, "Un plan quinquennal européen," in *Bulletin du Groupement français pour la paix par la SDN*, 4, (May 1931), 6. Found in CAT file 11C.7.3, ILO.

184 "Comité Fédérale de Coopération Européenne, Commission agricole et des travaux publics," 30 January 1932, CAT file 11C.7.3, ILO.

185 No mention was made to previous ideas for a European network. A. Guiselin, "Rapport pour 'Union Douanière Européenne. Complémentaire au Plan Quinquennal de Francis Delaisi. Electrification de l'Europe Centrale," 8 January 1932, CAT file 11.C.7.5, ILO.

186 LoN, *Monetary and Economic Conference: International Questions Relating to Public Works*, LoN doc, ser., C.377.M.186.1933.VIII (Geneva: LoN, 1931), 1.

187 The list of proposals presented to the London Conference can be found in LoN, *Report on the Fourth Session of the Committee*, LoN doc, ser., C.379.M.188.1933.VIII (Geneva: LoN, 1933); and LoN, doc, ser., C.377.M.186.1933.VIII.

country should raise its own funds. U.S. representative Paul Warberg stated that the United States opposed any idea of financing "somebody else's program".<sup>188</sup>

The CEEU, once the focal point of the European movement, was barely in existence in 1932. The main items on the 1932 agenda were electing a new chairman, as the CEEU lost its chair and spiritual father Aristide Briand.<sup>189</sup> Five years passed before the CEEU met again. At the final meeting in 1937, only a handful of persistent believers were left, who thought the CEEU "ought to meet even if it had nothing on its agenda".<sup>190</sup> This was literally the case at the meeting. The only resolution adopted was one that asked the Secretariat to draw up an agenda for the CEEU's next meeting, one that was never scheduled. The CEEU never really lived up to its expectations. According to historian Antoine Fleury, this was primarily due to the failure of the political activities of the League, aggravated by the political and economic crisis, and not so much to the underlying idea of European union as such.<sup>191</sup>

The European movement lost much of its momentum due to the death of two prominent proponents of European unity. Loucheur had already died in 1931. Added to that was the rise of Hitler Germany after 1933. Following Austria's *Anschluss* to the Third Reich, Coudenhove-Kalergi traded Vienna for Bern, and later New York.<sup>192</sup> This also had consequences for the promoters of a European system. Nation states turned to strategic network-building, anticipating a possible new war. Two important proponents of a European system left the scene. Oskar Oliven, of Jewish descent, fled from Germany to Zürich following the aryanisation of GESFÜREL in 1934.<sup>193</sup> He died in 1937. Dannie Heineman, also of Jewish origins, equally left Europe and eventually settled in New York. The start of WWII in 1939 sealed the fate of the Interwar projects. But as we shall see, the idea of a European electricity system had taken root.

188 Charles P. Kindleberger, *The World in Depression, 1929-1939* (London: Allen Lane, 1973), 210.

189 LoN, *Commission of Enquiry for European Union*, LoN doc, ser., C.724.M.324.1932.VII (Geneva: LoN, 1932).

190 The quote is from Mr. Paul-Boncour, representing France. LoN, *Minutes of the Seventh Session of the Commission*, LoN doc, ser., C.532.M370.1937.VII (Geneva: LoN, 1937).

191 Fleury, "Avant-propos," in *Le Plan Briand d'Union fédérale européenne: Perspectives nationales et transnationales, avec documents*, ed. Antoine Fleury and Lubor Jilek (Bern: Peter Lang, 1998), XV.

192 Conze, *Richard Coudenhove*, 51-53.

193 Joseph Walk, *Kurzbiographien zur Geschichte der Juden, 1918-1945* (Munich: Saur, 1988), 286.

## Conclusions

Around 1927-1930 an intriguing convergence took place between engineers aiming to keep the electricity sector international, and ideas on the economic and political unification of Europe. Intellectually underpinned by men like Coudenhove and Delaisi, "Europe" became part of the policy of both the LoN and ILO. In the slipstream of these initiatives, a number of plans for a European electricity network were presented. While previously cross-border electricity transmissions were discussed as "international" and "bilateral", engineers now increasingly spoke of a European network. "Europe" represented a unit of optimization, where energy resources and electricity demand could be rationalized to a maximum extent. In addition, the network maps of engineer like Oliven and Viel not only represent a future electricity system. They also are a vision of what Europe should be, showing which countries are "European", and which are not.

Initially these schemes circulated only within engineering circles. However, through the close relations between the worlds of engineering, industry, and politics – exemplified by men like Heineman, Loucheur, Thomas –, these plans for a European network gained wider knowledge. It was carried by a network of people who sympathized with Delaisi and Coudenhove, and believed in both rationalization and European unification. In particular the role of the Belgium government – in the person of Paul Hymans – was instrumental. Hymans was connected both to the European movement and Heineman. Eventually the idea of a European network transformed into an agenda item of the CEEU. In parallel, Albert Thomas and the ILO took up a similar study, related to both battling economic depression and securing a European peace.

The notion of a European network found an easy entrance into ongoing processes aiming at unification, for two reasons. First, it fitted well with ideas of international rationalization and cartelization, resonating since the International Economic Conference of 1927. Such notions were equally popular within engineering circles. Second, it served what I call an ideological mix of expectations. Electrifying Europe would create employment, and increase the productivity of Eastern European ("Europe B") agriculture and Western European industry ("Europe A"). To some, a European electricity network would symbolize European unity, and provide a foundation for a New Europe.

Although they both wished a European system, there were important differences between engineers and Europeanists.<sup>194</sup> Several Europeanists, in particular Thomas, hoped to construct a European grid in the short term. They saw the con-

<sup>194</sup> The distinction between the two is analytical. In practice, one could be an engineer and Europeanist at the same time.

struction of such a vast grid contributing to unemployment relief and improving the economic structure all over Europe. Electrical engineers, however, stressed that European interconnected system was a project for the coming generations. An immediate construction of such a network was in their eyes unattainable. It needed to use a transmission voltage of 400 kV or higher, which was neither technically feasible nor economically justified. In addition, the international financial climate was hardly favorable.

In looking at available responses to the plans, I found many critical remarks by engineers on the economic, financial, political, and technical feasibility of building a European network. But this opposition was primarily directed at a particular reading of Viel's and Oliven's proposals: the need to build a "super" network, in the form of new-to-built European arteries. These plans seemed to suggest a *planned* system. For many engineers, this planned European network did not sufficiently take into account the ongoing processes of network planning and building on the *national* level. Thomas' adviser Lemaître saw a political obstacle as well. Recognizing the protective legislation of national governments, he argued that no country would be willing to accept to be dependent on a third country for covering energy needs.

Most commentators therefore proposed to interconnect national networks. This would also improve economic mix, and open possibilities for mutual assistance. Oliven himself already mentioned that constructing interconnections between emerging national systems was a good "interim solution for the period until the time when the difficulties standing in the way of a common European high voltage system are removed by international agreements".<sup>195</sup> By this approach a European system would *gradually* grow. This approach also was close to ongoing processes. Statistical evidence shows how national production and consumption, as well as import and export of electric power *together* grew. Although cross-border electricity transmission remained rather modest, national and international electricity flows experienced a balanced growth. As an alternative to European network plans, this process was to be continued, alongside the possible removal of restrictive policies.

This new consensus did however have some consequences. Interconnecting national systems at that point was possible in only the most industrialized part of Europe. This can perhaps be best explained by looking at the presupposed dichotomy between Europe A and B. Men like Thomas and Delaisi wanted to develop economies in the eastern and southern part of Europe with electrification. But with national systems forming the backbone of an organically growing European

<sup>195</sup> Oliven, *European*, 6.

system, “Europe B” fell out of scope as it was hardly as electrically advanced as Western European countries. This dichotomy would be strengthened in following decades, because of economic and political causes.

This chapter showed how and when the movement to keep the electro-technical industry “international” transformed into a movement in favor of organizing electricity supply on a *European* level. Although plans for a European electricity network were subjected to criticism, crucially, their *European* dimension was never really in doubt. At the same time, the development of national systems was not questioned either. Engineers did not plead for building a planned European network in the short term. Rather, they foresaw a future European system as the outcome of gradual growth. “The European electricity economies together, not as a single unit”, argued one German engineer, “constitutes the European electricity economy”.<sup>196</sup>

196 “Die europäischen Elektrizitätswirtschaften in ihrer Gesamtheit, nicht als Einheit, sind die Europäische Elektrizitätswirtschaft.” Joseph Legge, *Grundsätzliches und Tatsächliches zu den Elektrizitätswirtschaften in Europa* (Dortmund: Gebrüder Lensing, 1931), 4.

## Chapter 4 (Re)Constructing regions, 1934-51

In April, 1949, a group of European engineers was welcomed by their American hosts, and presented to the press at a location not far from the White House in Washington D.C. The conference they attended there kicked off a five-week tour of power plants and control centers around the United States. The visitors from Europe, most of them system operators in their respective countries, flew across the Atlantic to see firsthand the American state-of-the-art in the electricity industry. This Technical Assistance (TECAID) Mission was an integral element of the electricity programs set up within the framework of the *European Recovery Program* (ERP), also known as the Marshall Plan. The overall intention of the ERP with regard to electricity was to expand generation capacity, by building national and international power plants on the one hand, and making better use of new and existing capacity by creating European power pools on the other. These power pools, should be brought about by building both physical and institutional interconnections between countries.

To Paul G. Hoffman, administrator of the ERP, the mission was about more than increasing the amount of electricity available in Europe. In his address to the European engineers, Hoffman named two other important aspects of the TECAID Mission, which also applied to the ERP general. First, increasing the availability of electricity should help increase productivity in industry. Hoffman linked productivity to welfare, stating that it was “impossible for any people to enjoy a better standard of living unless within the confines of that country the people produce more”.<sup>1</sup> At the same time, expanding generation capacity was directly related to economic recovery. The ERP’s most prominent advisor on electric power, Walker Cisler, considered electricity to be “one of the greatest resources for the revival of Western Europe”.<sup>2</sup>

The adjective “Western” reflected the absence of Central and Eastern European countries in the ERP. What is less obvious in Cisler’s mention of “Western Europe”

1 “Address of Welcome to European Electric Systems Operators Group and Press Conference,” 22 April 1949, Speech and article file 1949, Paul. G. Hoffman Papers, Truman Library, Independence (Missouri), Paul. G. Hoffman papers. I thank Frank Schipper who providing me a copy of the press conference transcript.

2 Ibid.