Italian Blackout Is A Warning to Europe

by Claudio Celani

"Such an accident cannot occur in Italy," were the last famous words pronounced by Prof. Andrea Bollino, the head of GRTN—the Operator of Italy's national electric grid—in the aftermath of the blackout that hit a region of 50 million people in the United States and Canada on Aug. 14. The echo of Professor Bollino's words had not yet vanished, when Italy was hit by an even larger blackout in the early morning of Sept. 28.

Fifty-six million Italians were left without electricity when, as a result of a failure in Switzerland and of other circumstances that unleashed a chain reaction, the whole Italian national grid was shut off by automatic safety procedures. Luckily, the blackout occurred on a Sunday and lasted no longer than a day, so that economic and social damages were limited. Also, health and social services structures such as hospitals, police facilities, and airports suffered practically no interruption thanks to emergency electric generators. Police and civil protection were mobilized efficiently, trained for such an event. Only railway traffic was paralyzed, with 110 trains stranded in the middle of nowhere; it took two days before all of them could be brought to destinations and normal schedules be restored. A few thousand people had to be rescued from subway stations in Rome and from elevators throughout the country.

Financial damage to retail business, mainly due to refrigerated food having to be thrown away, is calculated at 120 million euros, while for the same reason, each Italian family lost an average 20 euros. Looting during the night between Saturday and Sunday was of modest dimensions. The blackout could have been much worse, had it occurred on a working day; above all, Italians learned that it can occur again.

To answer the question: How is it possible that a fallen tree can bring an entire nation to its knees? one needs to address the problem at two levels. First, what was the contingent cause for the blackout of Sept. 28; and, second, why the system was vulnerable to such a cause. In fact, although a management failure cannot be ruled out (three investigations are underway to clarify responsibilities for what happened that night), such a failure can be compared to that of a man who drives his car at 100 kilometers per hour through the inner city, runs over a child, and blames the youth who was not supposed to cross the road at that moment! In other words, the deeper reasons for the blackout lie in a set of Malthusian and neo-liberal "free trade" policies which have created an inherent systemic fragility.

What Happened

In the early morning of Sunday, Sept. 28, during a storm shortly before 3:00 a.m., a tree fell on a high voltage line in Brunner, in the Schwyz Canton of Switzerland, sparking a fire and the interruption of the 380,000-Volt Lukmanier line which provides Italy with 1,300 megawatts of power. At 3:01 a.m., the computers of the Swiss operator, Etrans, transmitted in real time to the Italian operator, GRTN, the data of the interruption; i.e., that 1.3 gigawatts (billion watts) were missing. Ten minutes later, at 3:11, the data were confirmed verbally in a phone call from Etrans to GRTN; but for reasons which are now under investigation, GRTN added only 200 megawatts of new capacity to the system. Meanwhile, because of the Lukmanier failure, the next Swiss-Italian line, the San Bernardino, became overloaded. In a matter of 20 minutes—the normal time it takes for an overloaded line to heat up—the San Bernardino, the lines to Austria and Slovenia, and most importantly, the Albertville-Rondissone high capacity line which provides Italy with 3,000 megawatts from France, all failed in a cascade reaction.

At 3.21,the Italian grid was missing 6,000 megawatts capacity, and the overloading of the grid provoked the automatic shut-off of all plants. Italy was completely in the dark. Only 1.6 million inhabitants of the island of Sardinia, which has an independent system, were left with electricity.

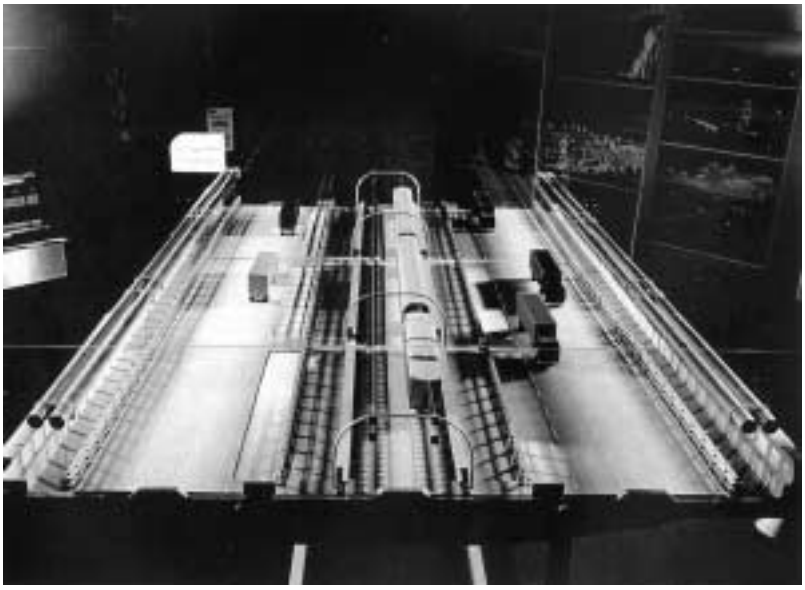
The Italian grid has a nominal capacity of 77,000 megawatts—77 gigawatts of power; by comparison, that of the European Union as a whole accesses about 600 gigawatts of power; that of the United States, about 730 gigawatts.

In reality, due to maintainence and obsolescence, only 49,000 megawatts are operational and available to the electric grid of Italy. Facing a peak consumption of 55,000 megawatts, Italy is forced to import 6,000 megawattw from its neighbors. During the night, however, consumption is greatly reduced, and can be fulfilled with 20-24,000 megawatts. This means that during the night, the Italian operator GRTN should have a reserve capacity of 31-35,000 megawatts, amply sufficient to face emergencies. Why, in the early morning of Sept. 28, was that capacity not used?

In reality, "energy deregulation" policy-shifts have led the GRTN to rely more on cheaper imported electricity, than on the more expensive domestic production; so that during the night, *domestic capacity is shut down* and the dependence of the system upon imported power jumps from an already huge 17%, up to a giant 30%. No system is able to compensate, in a matter of seconds, for the sudden lack of one-third of capacity. That is where the real vulnerability of the system lies.

A 'Pearl Harbor' Effect'

Italians are now raising questions about such a fragility due to excessive foreign dependence, a unique case in the



Italy is planning a new road, rail, and pipeline bridge across the Messina Strait to Sicily—but is 10,000 Megawatts short of the electric power to keep the lights on in Italy! The Sept. 28 national blackout has caused a "Pearl Harbor" effect, including proposals to build nuclear plants for the first time in decades.

European Union (the second-largest electricity importer, Spain, buys 3% of its power abroad), and debating how to overcome it. In this sense, the blackout has had a certain "Pearl Harbor" effect. However, the reader should not think that we face here a typical case of Mediterranean thoughtlessness: Today's Italy could be tomorrow's Europe. The Italian fragility is the result of a set of Malthusian free-trade and deregulation policies which are now being applied throughout Europe (see "How Can Europe Meet Its Huge 21st-Century Energy Gap?" *EIR*, Oct. 10).

In the mid-1960s, Italy was the third-largest world producer of nuclear energy for peaceful use, after the United States and Great Britain. The inspiration of scientists such as Enrico Fermi, who built the first atomic pile, and the organization of state-owned enterprises, such as ENI, IRI, and ENEL, made it possible to for Italy to reach 3.9 gigawatt-hours of nuclear-produced electricity in 1966. Despite the assassination of industrialist Enrico Mattei, the leader in the fight for national energy independence, and a scandal which overthrew Felice Ippolito—the"father" of the Italian nuclear program—the European financial oligarchy did not succeed in halting the program.

In 1973, after the oil crisis, plans to increase Italy's energy independence were made by the government, with a program to build 20 more nuclear power stations. But soon, such plans were slowed down by a new phenomenon, a growing environmentalist movement which began infiltrating all political parties, fueled by foreign and domestic oligarchical interests. By 1980, Italy had succeeded in building only one of those 20 plants, an 800 megawatt BWR (boiling water reactor) in Caorso, near Piacenza. The first reactor of a 2,000 megawatt plant in Montalto di Castro was almost ready when, in 1987, a referendum in the aftermath of the Chernobyl accident brought a manipulated public opinion to vote against nuclear energy. The referendum concerned not nuclear energy directly, but rather, government's ability to overrule local opposition to construction of nuclear plants; its 80% vote against that ability, offered a pretext for radical political decisions, not only to stop construction of new plants, but to shut down existing ones.

Local administrations then gained a growing power over the construction of any kind of power plants, with the result that in the last 20 years, hardly any new capacity has been added, despite growing demand. The gap has been filled with imports; Italy today is dependent on nuclear energy—produced by France!

Had Italy proceeded with the 1975 PEN (National Energy Plan) and built 20 nuclear plants, this would have meant up to 40,000 megawatts of clean and cheap energy, about four-fifths of the current operational capability. Instead, Italy has kept relying on fossil fuels, mainly oil and natural gas, which, besides being infinitely more polluting than nuclear energy, have also the property of being more expensive. In fact, Italian electricity bills are today double the French, triple the Swedish, and 60% higher than the European average.

Furthermore, since 1981, Italy has invested the equivalent of 50 billion euros in so-called alternative energies, such as wind and solar, but this has added a ridiculous 0.1 % to total capacity!

The Devil's in the Deregulation

The energy crisis sharpened after 1999, when Italy, pushed by the European Union, started the liberalization of its energy market. The state-owned electricity concern ENEL, owner of the electricity grid and of 90% of the production capacity, was forced to give grid management to GRTN (which was established out of a section of ENEL made "independent") and give up 50% of the market to other operators. ENEL did this by selling part of its capacity (obviously, the less productive part) and by shutting down obsolete plants, all this adding up to a net loss of capacity.

Antonio Marzano, Minister for Production, recognized in a Parliament speech on Sept. 31 that the origin of the Italian energy crisis lies in the wrong decisions taken in the aftermath of the nuclear referendum in 1987. Nevertheless, Marzano, like others in the government, calls a return to nuclear energy impracticable because in the meantime Italy has lost its know-how, and the current emergency must anyhow be solved in the short term.

Thus, the government has now pushed through a decree to speed up the construction of 24 conventional power plants for a total of 11,834 megawatts. At the same time, the government order empowers regional authorities to locate sites, bypassing local opposition at any level. Such local opposition had reached levels of absurdity. For instance, the Naples region, Campania in southern Italy, has a deficit of 13,000 gigawatt-hours, which could in large part be filled by another southern region, Apulia, which has an excess production of 8,703 GWh. In order to do that, a transmission line 200 kilometers long has been built, connecting Apulia to Campania via the Basilicata region. However, Campania is still waiting for that electricity, because the small village of Rapolla, of 4,000 inhabitants, is preventing the construction of the last 6 kilometers, with the argument that the line has to be built underground because of health concerns. The constructor, ENEL, rightly argues that underground lines cost ten times more.

The new government order may now unblock 24 projects so far blocked by similar arguments. But once local opposition is overruled, another problem will surface: financing. In fact, few of the new plants could start, because private banks, which are supposed to finance them, are still unable to judge them profitable. They estimate current electricity prices to be too low to invest in energy plants. Ironically, ENEL, which is still state-owned, has both the money and the capacity to build those new plants, but it cannot, because of the ideologically motivated cap of 50% of domestic production imposed by the EU "liberalization" guidelines.

Back to Nuclear Energy?

But even if the government plan were successful, Italy would still be years away from solving the emergency situation, not to speak of achieving energy independence. In fact, by the time these 24 new plants can be operational—at the earliest, in five years—the electricity demand will be have grown by the equivalent of a 1,000 megawatt plant each year. And even if the practices of shutting down half national capacity by night are abandoned, we will again have situations like last Summer, when in face of a peak of 55,000 megawatts required, a severe drought reduced production capacity both in Italy and France, due to the lack of water available to cool down plants. France temporarily suspended its export, and the Italian government was forced to implement limited blackouts throughout the country in late June.

In addition, exporter France has also started its deregulation-"liberalization" process, which will lead that country, too, towards a decline in investment and productive capacity. We are heading towards a general situation in which Europe will run out of electricity.

This reality has pushed the surviving Italian nuclear engineers who have not fled the country, to speak up and propose to re-start two of the nuclear plants which have been shut off—a pressurized water reactor (PWR) in Trino Vercellese and the above mentioned Caorso BWR. Davide Tabarelli, an expert of the private energy consulting firm RIE, insists that the 800 megawatt Caorso plant, which has been put "on rest," but not turned off, could be reopened in 15-20 months and provide 6 billion kilowatt-hours per year, at the same cost as the electricity imported from France.

Indicating a turn in the fabric of public opinion, this proposal was presented on the most popular TV talk show, "Porta aporta," by another senior nuclear engineer, Prof. Paolo Fornaciari. Fornaciari insisted not only that Caorso and Trino could be reopened in 20 months, but that this could be done at one-tenth of the costs of decommissioning those same plants. During that show, for the first time in decades, favorable information on nuclear energy was given; host Bruno Vespa confessed that in 1987, all political parties ordered state television RAI not to correctly inform the voters on nuclear energy in the context of that referendum. Vespa produced a map showing that Italy is surrounded by nuclear plants in France, Switzerland, and Slovenia, less than 100 kilometers from its borders. Which side of the border they are on is indifferent in terms of security, but not in terms of costs.

Earlier, Professor Fornaciari had published a long article in the daily *Il Giornale*, presenting his proposal and attributing the electricity crisis to "having adopted the most radical solutions in liberalization models, sacrificing the reliability of supplies on the altar of competition." And "the fuel price, which is determined by a cartel, and not by the market, makes up 80% of the total cost of generation," Fornaciari wrote. Nuclear energy not only will be cheaper than oil and gas-produced energy, but it is cleaner, and meets an "ethical challenge": "The question is to supply everybody, and not only a few, enough energy to guarantee . . . development. We must, above all, reduce the intolerable differences which still today exist in the living standards of the rich northern countries and the poor countries in the south of our planet. We need therefore to consume much more energy, and to launch a new Marshall Plan in favor of developing countries."

Forniciari explained that "the only way to achieve that . . . is to greatly increase the *proportion of electricity* within the total energy consumed [the hallmark of advanced industrial nations—ed.] and to generate that electricity with nuclear energy. Those same plants can then be used to desalinate seawater for agricultural or drinking use, and, in the future, even to produce hydrogen during the night."

A majority consensus is emerging in the Italian political world, in support of the proposition that the 1987 decision to abandon nuclear energy was a mistake. Even Enrico Letta, former Industry Minister and now member of an environmentalist-dominated opposition, recognized that statement to be true, and proposed to buy nuclear plants abroad. ENEL chief executive Paolo Scaroni proposed that ENEL start cooperation with the French EDF to "learn again" how to build nuclear plants.