

法國電力公司(EDF)緊急應變部隊就位

EDF's emergency response force in place

(本文翻譯自 2014 年 3 月 12 日世界核能新聞 (World Nuclear News, WNN) 之報導及 2014 年 3 月 11 日法國 EDF 之新聞稿)

2014年3月

法國電力公司(EDF)已在全國四個區域建置完成核子緊急應變基地。如果發生核子事故，應變總部可依地緣考量，調派這四個基地之人員及設備，組成核能迅速應變部隊，快速抵達發生嚴重事故之任何一座電廠，協助現場人員執行緊急應變。

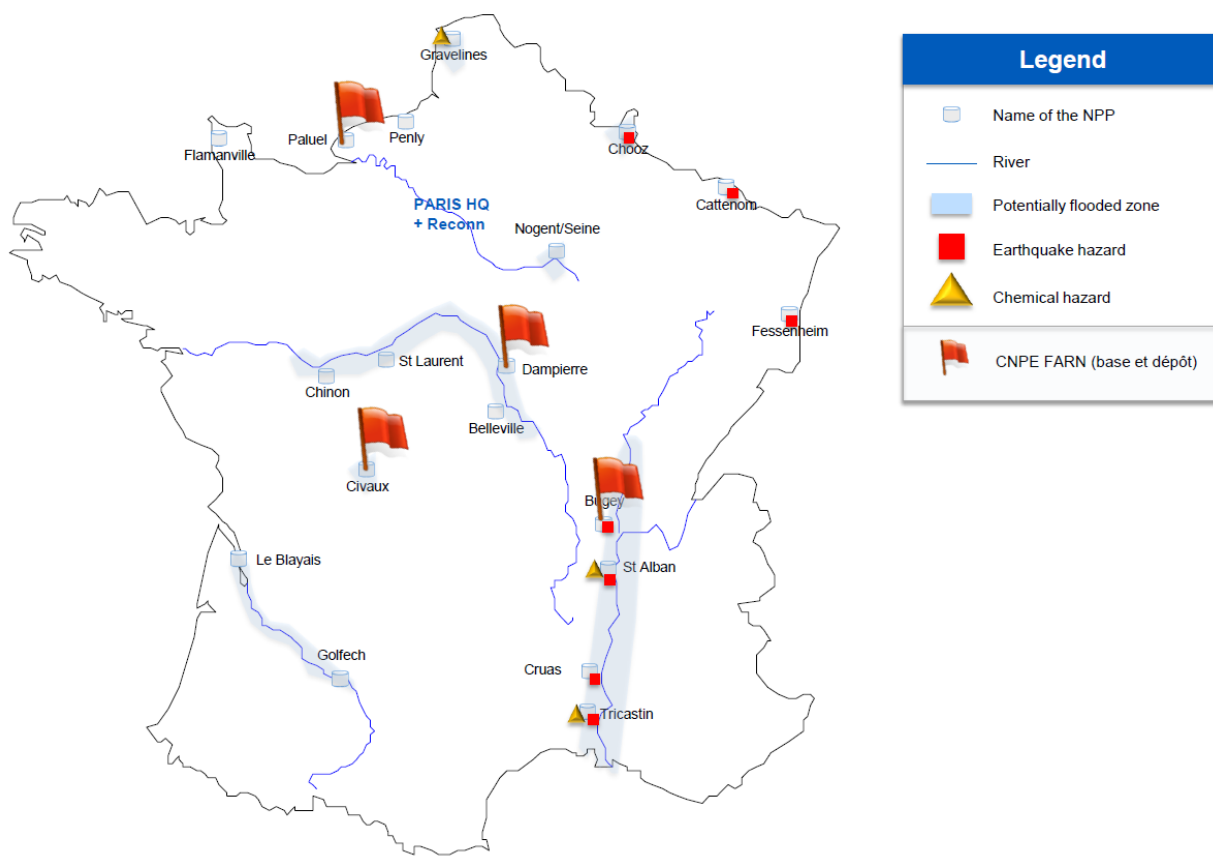
2011 年 3 月 11 日日本福島第一核電廠事故後，法國電力公司(EDF)隨即於 2011 年 4 月 29 日提出一個建置核能迅速應變部隊(Nuclear Rapid Response Force, Force d'Action Rapide du Nucléaire, FARN)的提案，這個部隊將由 EDF 應變總部及四個核子緊急應變基地(Nuclear Emergency Bases)的專家及工程人員組成。該部隊在接獲通知後，立即派遣應變人力及救援設備，於 24 小時內抵達法國境內的任何一座電廠以支援緊急應變作業。EDF 建置核能迅速應變部隊之提案，隨後已獲得法國管制單位核能安全署(ASN)之許可。

EDF 表示，法國第四個（也是最後一個）緊急應變基地已於法國東南區 Bugey 電廠設置完畢，該基地由具備電廠運轉、維護、輻射防護及核能後勤等專業背景的 70 個 EDF 員工組成，這些員工已完成訓練，可隨時協助處理任何意外事故。其他三個應變基地，已於較早時間設置完畢，分別位於西區的 Civaux 電廠、北區的 Paluel 電廠及中央地區的 Dampierre 電廠。隨著第四個（也是最後一個）應變基地之完成設置，核能迅速應變部隊已全面建置完畢並就位，應變總部可視發生事故電廠的位置，依地緣考量，調派這四個基地之人員及設備組成應變部隊，迅速前往事故現場，執行搶救與支援事宜。尤其，在喪失電力或水源的事件下，應變部隊可支援電廠現場人員，恢復電力或水源之供應，以減少事故惡化、防止顯著性的放射性物質外釋及避免爐心熔毀。

這四個基地可相互支援人力及設備，務必於 24 小時內將緊急應變支援能量送達任何一座核電廠。每個基地均配置有移動型泵、發電機、卡車、駁船（空中載具為基本配備）、全地形起重設備(all-terrain lifting equipment)、個人防護設備及通訊設備等裝備，可直接運送至事故現場。

EDF 宣稱，該公司是全世界第一個建置具特別應變能力部隊之核能設施經營者。核能迅速應變部隊編制如下：

- 主要成員來自應變總部及四個緊急應變基地。總部人員約 30 人，分成 5 個梯隊待命；每個應變基地人員約 80 人，分成 5 個梯隊待命。(註：雖然法國電力公司 EDF 新聞稿載明應變部隊成員總計約 150 人，經查閱 EDF 其他相關資料，總部人員約 30 人，每個應變基地人員約 80 人，四個基地共 240 人等數據似較新聞稿 150 人明確。)
- 成員除負責核能電廠的例行性業務外，也要執行應變部隊相關活動、緊急應變演練及接受定期訓練。
- 成員應具備電廠運轉、維護、輻射防護、核能後勤、核能安全等專業技能。
- 於接獲緊急通知後一個小時內完成動員、12 個小時內抵達事故現場，24 小時內支援設備完全就緒以進行救援。
- 成員每年應接受 20 個星期之特別訓練，譬如危機管理、緊急應變相關作業、設備操作及後勤業務等。



法國電力公司(EDF)四個核子緊急應變基地分布圖



法國電力公司(EDF)核能迅速應變部隊(Nuclear Rapid Response Force)

EDF's emergency response force in place

12 March 2014

All four of EDF's regional nuclear emergency bases are now in full operation. Proposed following the Fukushima accident, these will be capable of rapidly responding to a serious accident at any French nuclear power plant.



The Bugey FARN team takes part in an emergency exercise at the Saint Alban plant (Image: EDF, Vautrin Laurent)

Immediately after the accident at Japan's Fukushima Daiichi plant in March 2011, EDF proposed to put in place a 'rapid reaction force' of experts and engineers that can be deployed on short notice to any of its power plants around the country. That proposal was subsequently approved by the French nuclear safety regulator, the *Autorité de Sûreté Nucléaire* (ASN).

EDF said that the fourth and final regional centre for this Nuclear Rapid Action Force (*Force d'Action Rapide du Nucléaire*, FARN) has now been opened at the Bugey plant in southeast France. It will be manned by a team of 70 EDF employees specialized in plant operations, maintenance, radiation protection and nuclear logistics.

Other FARN bases have already opened at the Civaux plant in western France, Paluel in the north of the country and Dampierre in central France. The four bases are

US emergency centres

The US nuclear industry is developing two regional centres - at

coordinated by a national headquarters.

Between them, the bases provide emergency support, in terms of personnel and equipment, to any French nuclear power plant within 24 hours. In total, the FARN employs some 150 people who divide their time between FARN-related activities, training, emergency exercises and their usual jobs at nuclear power plants. Each of the four bases holds equipment that can be sent to the scene of an accident, including mobile pumps, generators, trucks, barges, lifting equipment, personal protection equipment and communications equipment.

Memphis, Tennessee, and Phoenix, Arizona - to provide emergency response equipment to any affected site in the country within 24 hours of an extreme event. The centres are intended to supplement an initiative to purchase additional on-site portable equipment at every US nuclear facility.

EDF claims it is the first nuclear operator to set up such a response force.

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French Nuclear Rapid Action Force (FARN) opens final regional base at Bugey

The implementation of a Nuclear Rapid Action Force (known by the French acronym FARN) has passed a key milestone with the opening of its fourth (and final) regional base at Bugey (in the south east of France). The base will be staffed by a team of 70 EDF employees, specialised in plant operations, maintenance, radiation protection and nuclear logistics, who are trained and prepared to cope with any situation.

FARN is tasked with providing emergency support – in terms of personnel and equipment – at any nuclear power plant in France within 24 hours. In the event of loss of electricity and water supplies, FARN personnel will support on-site teams to restore supplies. EDF announced the creation of this special force in the immediate aftermath of the accident at the Fukushima-Daiichi power plant in Japan, and the decision was subsequently validated by the French Nuclear Safety Authority.

EDF FARN at a glance (current figures):

- 150 employees who divide their time between FARN-related activities, training, emergency drills and their day jobs at nuclear power plants. FARN teams offer specific skills in plant operations, maintenance, logistics, safety and radiation protection, environment, etc.
- Teams capable of mobilising within one hour, arriving at a site where an accident has occurred within 12 hours, and being fully operational within 24 hours.
- 20 weeks of specially tailored FARN training every year, in areas such as operational crisis management, logistics/handling, equipping a “rear base”, etc.
- Equipment available at each regional base, including mobile pumps, generators, trucks, barges, all-terrain lifting equipment, personal protection equipment, communications equipment, etc.

With bases at Civaux (Vienne), Bugey (Ain), Paluel (Seine-Maritime) and Dampierre (Loiret), FARN emergency measures – coordinated by a national headquarters organisation – are located within easy reach of all the power plants in France’s nuclear fleet, thereby ensuring very short response times. EDF is the first operator to set up a special force of this kind, reinforcing its nuclear crisis management schemes.

The EDF Group, one of the leaders in the European energy market, is an integrated energy company active in all areas of the business: generation, transmission, distribution, energy supply and trading. The Group is the leading electricity producer in Europe. In France, it has mainly nuclear and hydraulic production facilities where 95.9% of the electricity output is CO₂-free.

EDF’s transmission and distribution subsidiaries in France operate 1,285,000 km of low and medium voltage overhead and underground electricity lines and around 100,000 km of high and very high voltage networks. The Group is involved in supplying energy and services to approximately 28.5 million customers in France. The Group generated consolidated sales of € 75.6 billion in 2013, of which 46.8% was achieved outside of France. EDF is listed on the Paris Stock Exchange and is a member of the CAC 40 index.

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