

CN 254

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**Protecting sensitive EDF
nuclear sites**

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Protecting sensitive EDF nuclear sites

- A few historical points
- French regulations
- Main principles applied by EDF
- NPP protection: a cooperation between State & EDF
- *Future perspectives*
- Some points for consideration and conclusions

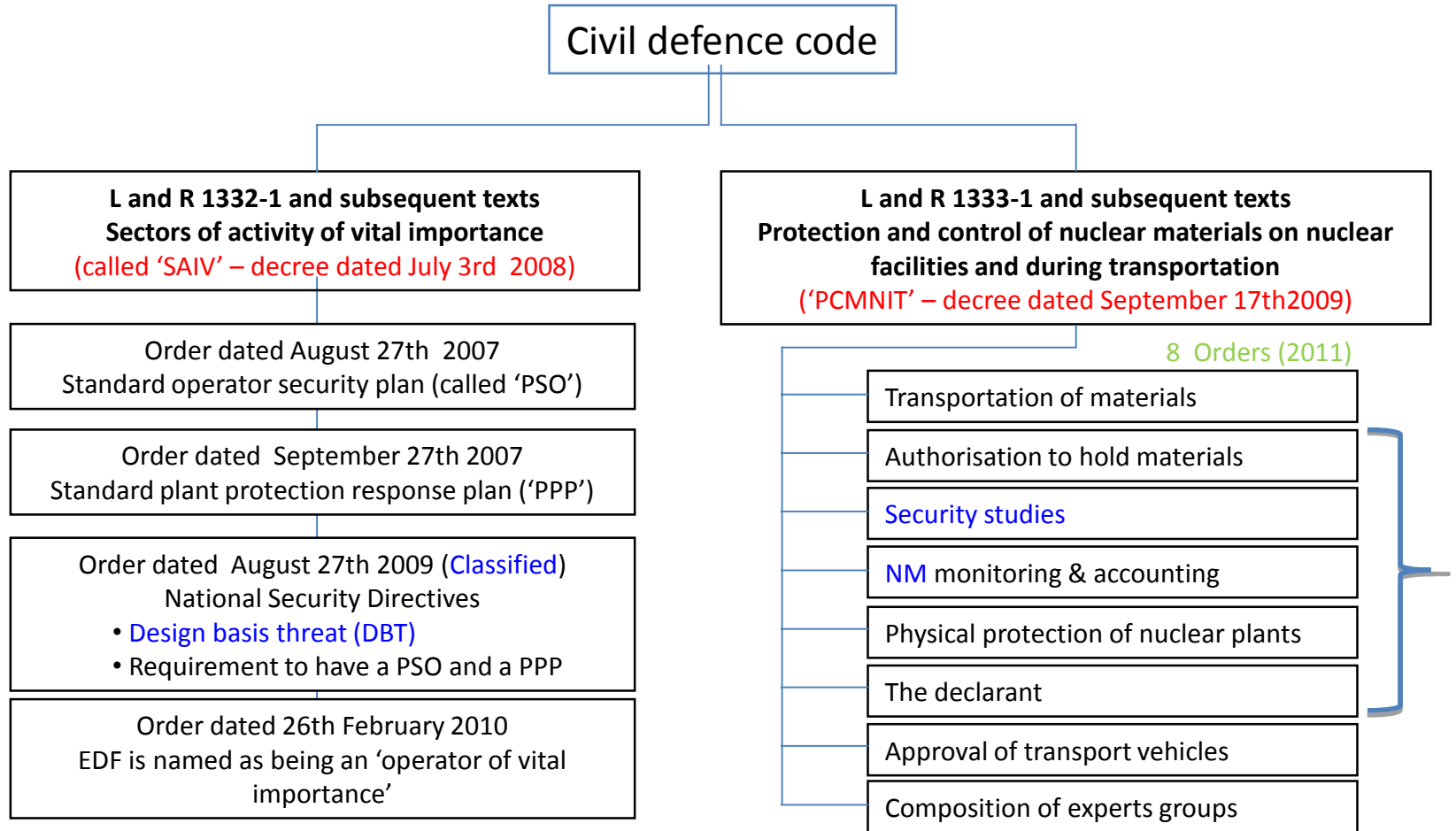
Protecting sensitive EDF nuclear sites

A few historical points

- There is a *historical* need to protect nuclear materials / nuclear fuel (*counter-proliferation measures*)
- A **multifaceted and continuously evolving** terrorist threat (World Trade Center, 2001, Madrid, London, Mumbai...)
- Strengthening of both international and French regulations ...
- The **current** context : a **significant terrorist threat**...

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Recent French regulations



Site protection measures are based on a DBT



Required measures and obligation to demonstrate the *suitability of physical protection measures & organization*

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The main principles

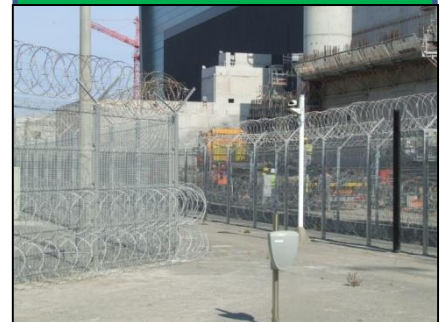
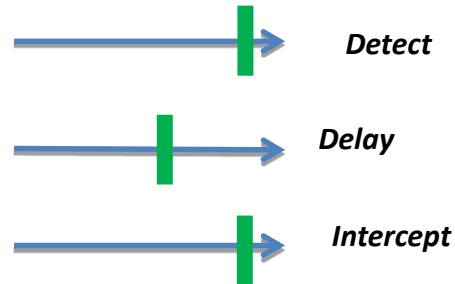
- Establish a site protection policy
- *Define and organise* a model for site protection, including principles, practical methods for application and a continuous improvement loop (Deming wheel principle)
- Three main cornerstones :
 - Detection,
 - Delaying intruders, delaying the threat
 - Intervention capacity (mitigating the threat)

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EDF model for protecting nuclear sites

➔ ACTIVE PROTECTION : THE EDF MODEL

- Detection at the perimeter of site areas
- Effective delaying measures
- Rapid deployment of dedicated & specialized armed forces



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The main principles applied by EDF
(Defence in depth)

Role of
EDF

- To set up measures to:
 - detect *any attempted* intrusion
 - hinder or delay the intruders
 - alert law enforcement agencies & deploy immediately dedicated armed response
 - mitigate the impact of a malevolent act

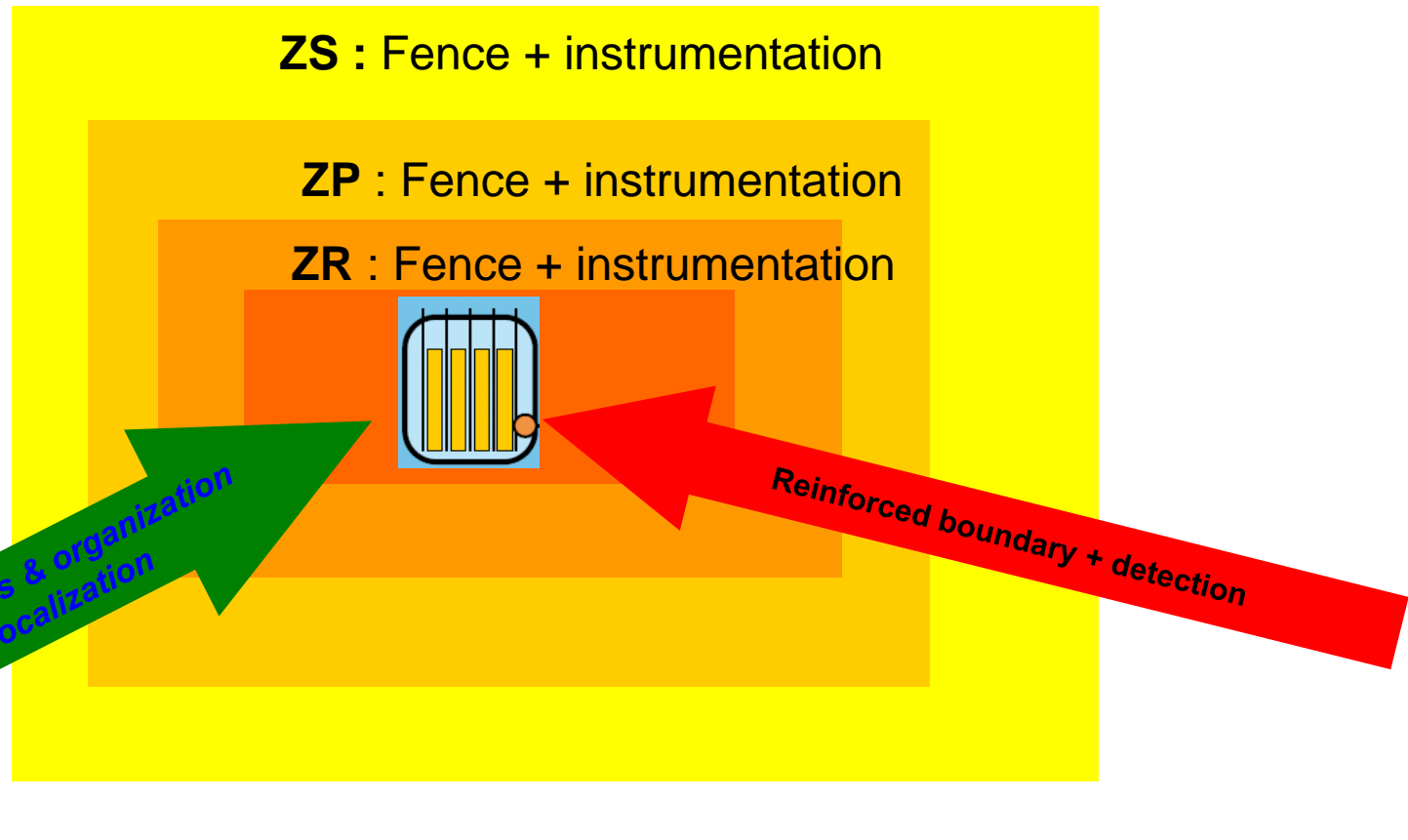
Role of
the state

- To gather intelligence & assess the threat
- To respond to terrorist attacks

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The main principles applied by EDF

Material resources: **Defence in depth**



The monitored area: access control and first fence



The protected (ZP) and restricted (ZR) areas: Enhanced boundaries and detection measures



Monitoring and raising the alert: monitoring stations along with people using *high-performance* technology



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The main principles applied by EDF

Security culture

EDF'S model is based on :

- a strong culture
- regular training
- threat analysis & assessment

Graded approach

EDF'S model is based on :

- organisational and technical measures tailored to the various threats
- ability to reversibly and constantly adapt NPP physical protection to the assessed threat



The French nuclear counter-terrorism response strategy applied to EDF NPP



One key objective:

TO PRESERVE NUCLEAR SAFETY

One major constraint:

TIMEFRAME (nature & kinetics of attacks vs. safety issues)

EDF strategy:

A response force with CT response capabilities tailored to NPP safety issues

EDF solution:

A strong partnership between EDF and Mol



The French nuclear counter-terrorism response strategy applied to EDF NPP



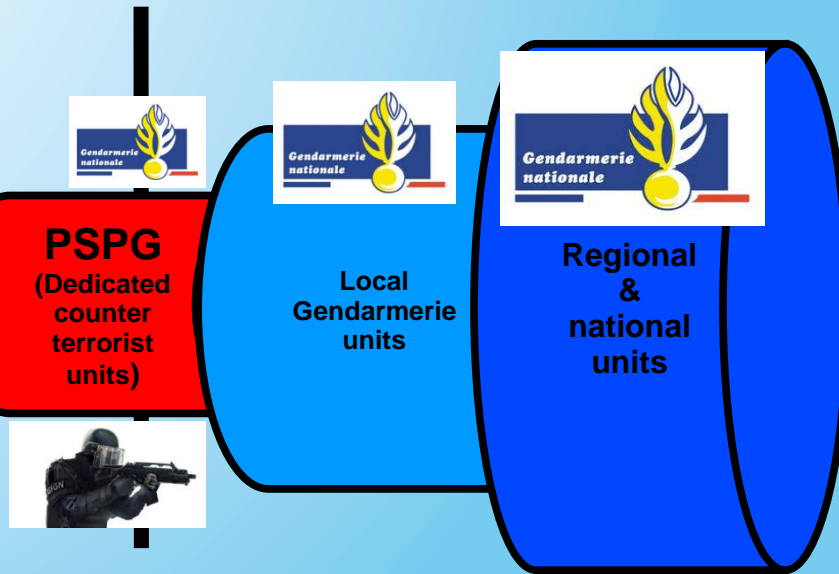
Keys of success:

- A dedicated & specialized response force (24/7)
- Provided capabilities consistent with DBT
- A response force composed of sworn police officers
- An efficiency build on a double integration : within EDF & law enforcement agencies organizations
- Response forces' coordination & interoperability (between in & off-site forces) based on common SOPs, training and equipment policies designed by the national CTU (GIGN)

NPP physical protection: a shared responsibility & a strong cooperation between State & EDF



Nuclear theft & sabotage



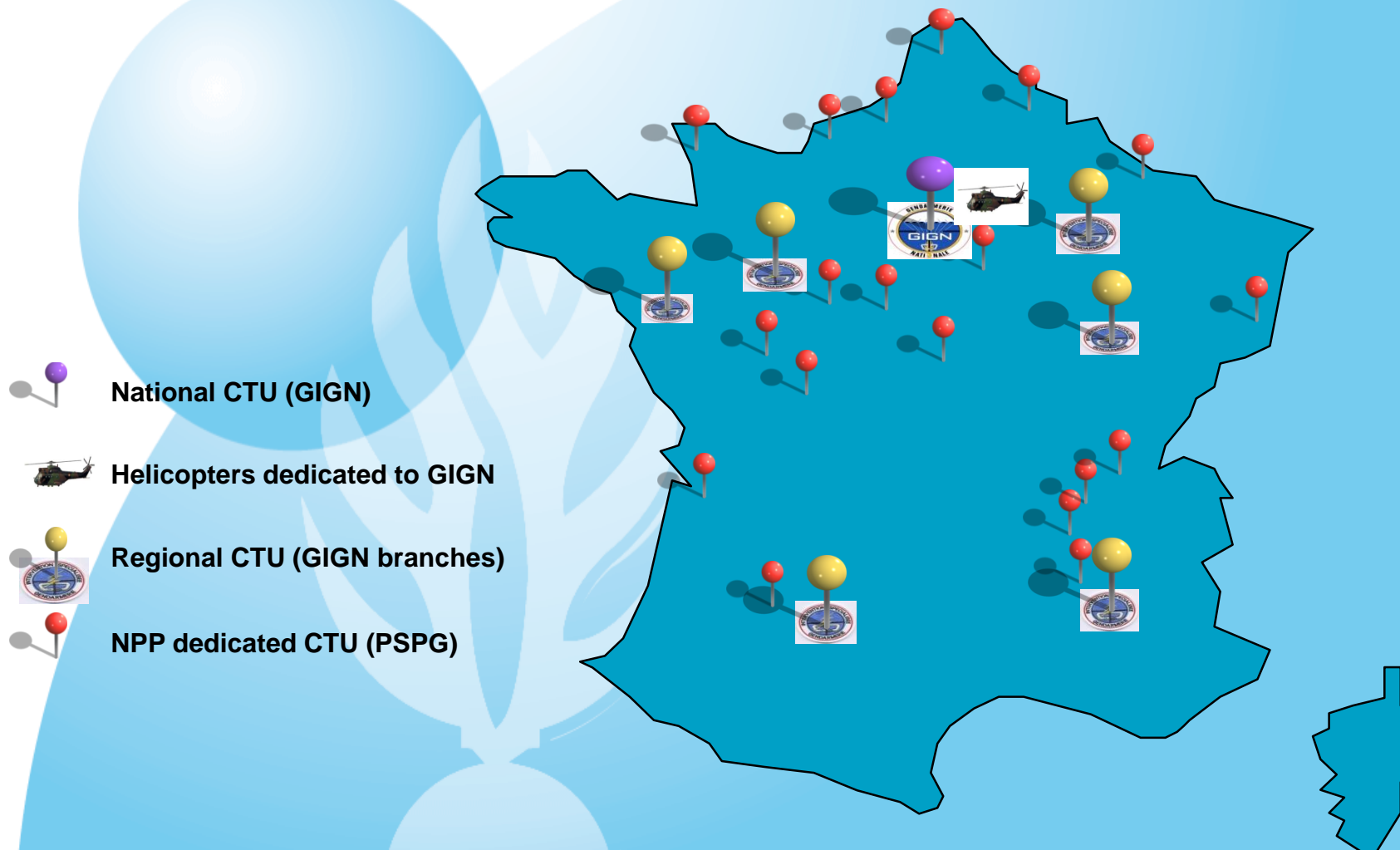
**DBT
Intelligence gathering
Threat assessment**

**Security
demonstration**

**Intervention & crisis
management**

**PSPG = 1°- Specialized Gendarmerie unit
2°- Integral part of EDF's PP measures & dedicated response force
3°- First layer of the State's response (interface between on-site & off-site responders)
→ integrated twice : within EDF organization & the Gendarmerie Nationale**

The NPPs physical protection & the dedicated CT response



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Future perspectives

- Integrating the new arrangements associated with French regulations:
 - New technology to be adapted to set targets and around EDF's own needs
 - Significant coaching by management needs to be allowed for
 - *Investment choices* need to be made advisedly
 - *Efficiency of the chosen protection systems must* to be demonstrated; performance tests need to be performed
- *Preparing for new types of threat:*
 - Threat from explosives, cyber attack, other future threats...
- Pursuing and strengthening the close cooperation between the Gendarmerie and EDF



Strong links are required between EDF and the competent bodies
EDF needs to have competent, flexible and trustworthy industrial partners

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Some points for consideration

- Protecting sensitive sites relies more and more on *advanced technology implemented* by people,
- Protecting sensitive sites requires significant investment both in human and material resources,
- Protecting sensitive sites relies on a variety of *expert* appraisals or points of view,
- A global *strategic* approach might be required
- Cooperation between the different operators is a way of driving progress (an example being WANO), while complying with confidentiality rules,
- Exercises and various *audits* and inspections are also a way of driving progress



**Complex in terms of management ...
... collective skills are *necessary***

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Conclusions

If security is not going forwards then it is going backwards....

Than you for your attention