# The Mysterious Risk:

*Indoor radon and the evolution of its perception in France*

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*Enhancing nuclear safety*

**Baromètre IRSN**
La perception des risques
et de la sécurité par les Français

↗ **A yearly study designed to monitor the evolution of risk perception in France**

▎Conducted since 1990

▎A core of questions kept from one year to the other

▎A stable methodology

  ▪ Face-to-face survey

  ▪ Representative sample of 1,000 French people

**2000**
questions

**+ de 30**
ans d'enquêtes

↗ **A valuable tool to analyze the evolution of risk perception by the French population**

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# Indoor radon in the IRSN Barometer

↗ **Followed since 1996**

↗ **Among 35 risks questioned from 3 angles:**

▎ The seriousness of the risk

▎ the trust towards the authorities to manage it

▎ the credibility of the information given about it

↗ **Other risks include:**

▎ NPPs,

▎ Chemical installations,

▎ Air pollution,

▎ Alcohol consumption,

▎ Domestic accidents...

# Radon compared to other risks in 2017

↗ **Seriousness of risk: 35th (last) position**

▎ Comes after medical X-rays (34th) and radiation therapy (33rd)
▎ Cancer and terrorism are on top of the list



↗ **Trust in the authorities: 31st position**

▎ Comes before soil pollution (32nd) and pesticides (33rd)
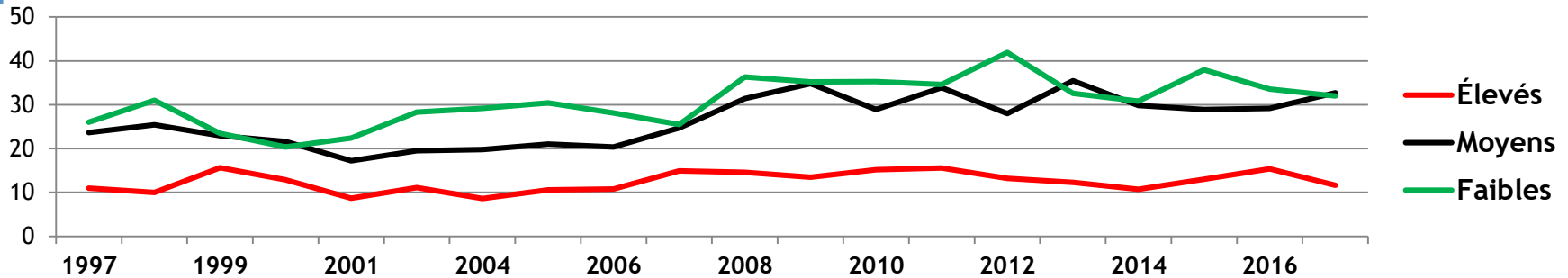▎ AIDS and forests fires are on top of the list

↗ **Credibility: 28th position**

▎ Comes before GMOs(29th) and chemical plants (30th)
▎ Traffic accidents and heat waves are on top of the list

→ **Radon perceived as a low risk ; low trust level in the authorities to handle it, and low credit given to the information about it.**
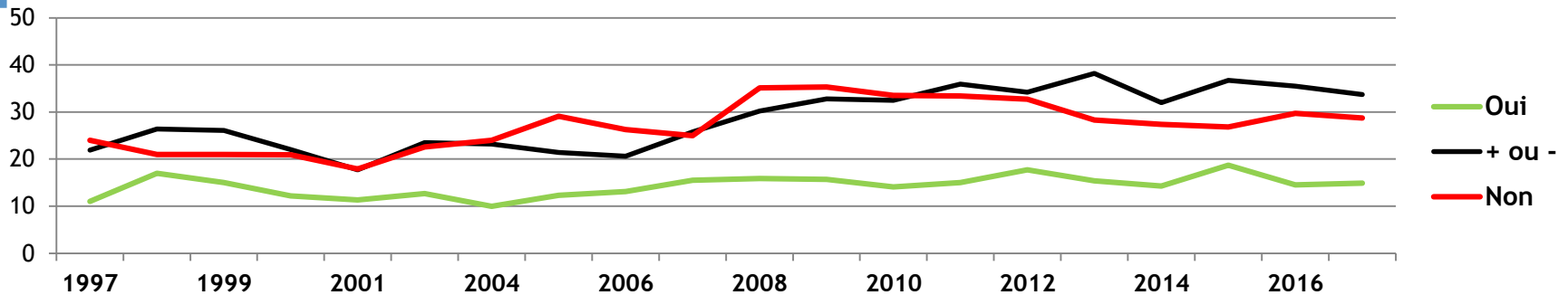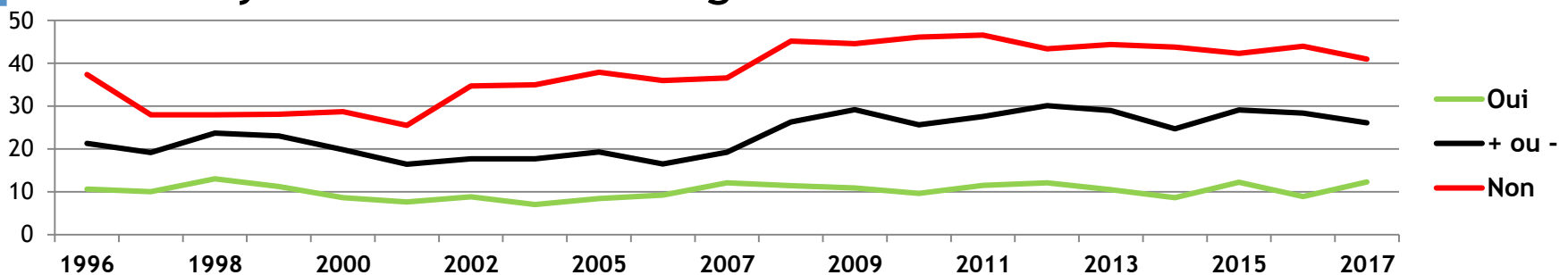
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# Evolution of indoor radon perception

**Seriousness of the indoor radon risk**



Legend: Élevés, Moyens, Faibles

**Trust in the authorities to handle it**



Legend: Oui, + ou -, Non

**Credibility of the information given about it**



Legend: Oui, + ou -, Non

# So… why the « mysterious risk »? (1/3)

## ↗ Radon gathers by far the most « don't know » replies

▌For all 3 dimensions (seriousness of risk, trust and credibility), most of the 35 risks gather « don't know » replies averaging 1% to 2 %

▌Radon gathers sky-high scores:
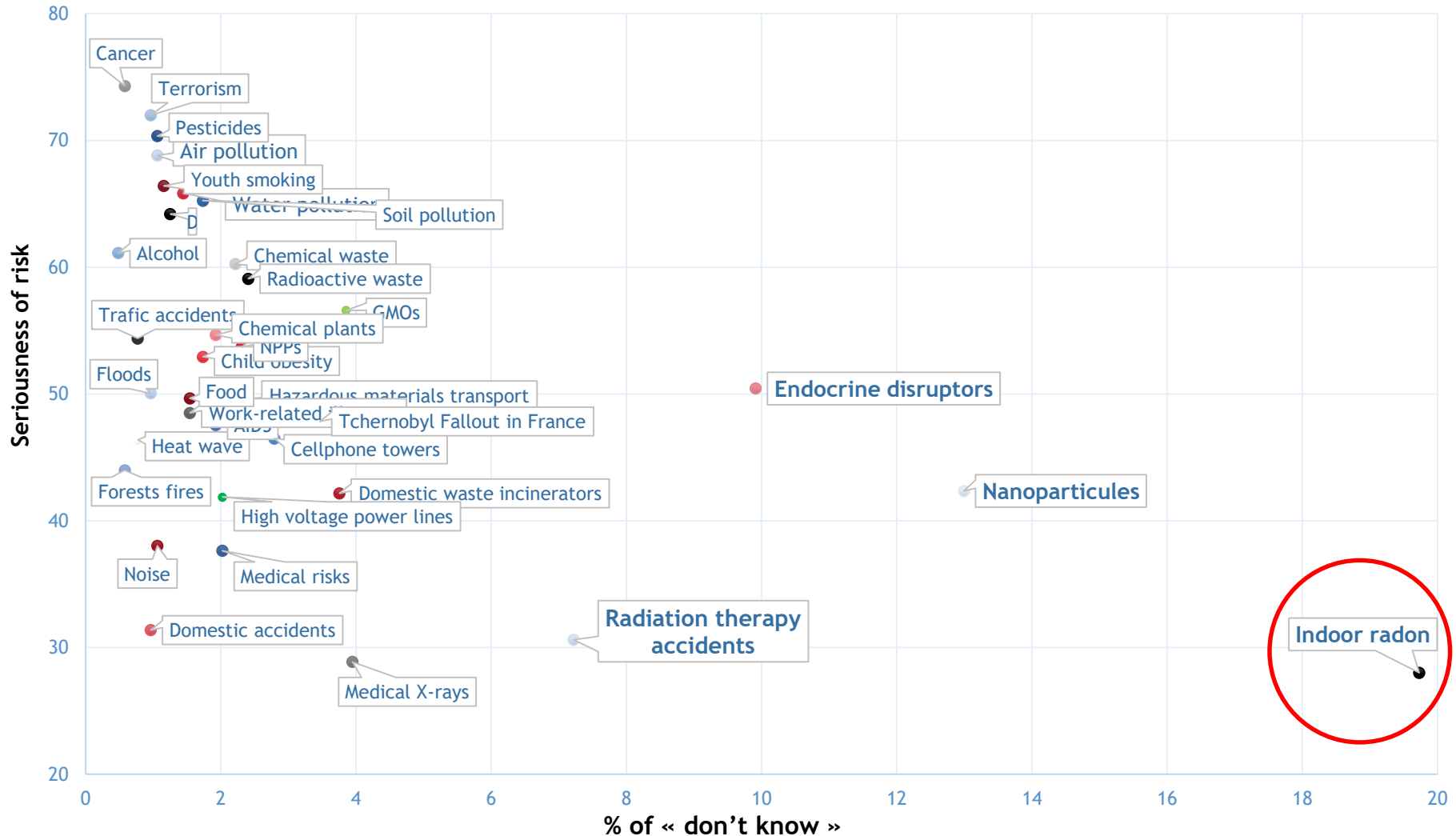- Seriousness of risk: 24 %
- Trust: 23 %
- Credibility: 21 %



Legend:
— Niveau risque
-- Confiance
— Crédibilité
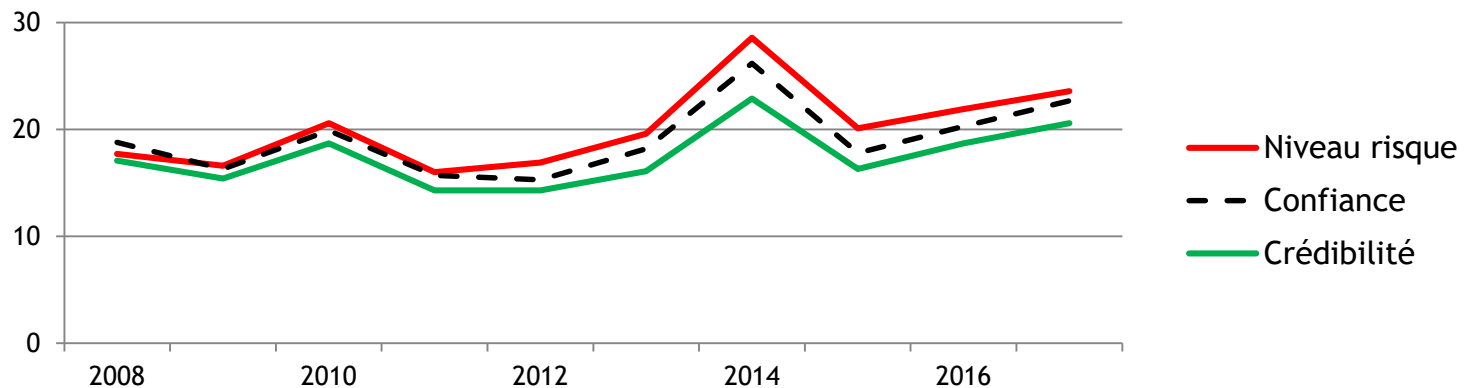
▌The only two risks coming (not really) close are:
- Nanoparticules (ca. 10-12 %)
- Endocrine disruptors (8-10 %)

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# So… why the « mysterious risk »? (2/3)



Scatter plot: x-axis "% of « don't know »" (0 to 20), y-axis "Seriousness of risk" (20 to 80).

Data points labeled:
- Cancer
- Terrorism
- Pesticides
- Air pollution
- Youth smoking
- Water pollution
- Soil pollution
- D
- Alcohol
- Chemical waste
- Radioactive waste
- Trafic accidents
- GMOs
- Chemical plants
- NPPS
- Floods
- Child obesity
- Food
- Hazardous materials transport
- Endocrine disruptors
- Work-related
- Tchernobyl Fallout in France
- AIDS
- Heat wave
- Cellphone towers
- Forests fires
- Domestic waste incinerators
- Nanoparticules
- High voltage power lines
- Noise
- Medical risks
- Domestic accidents
- Radiation therapy accidents
- Medical X-rays
- Indoor radon

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# So… why the « mysterious risk »? (3/3)

▎ Indoor radon aligns with 2 relatively new and complex risks

▎ Contrary to other risks, radon targets specific territories while the IRSN Barometer is representative of the entire French population
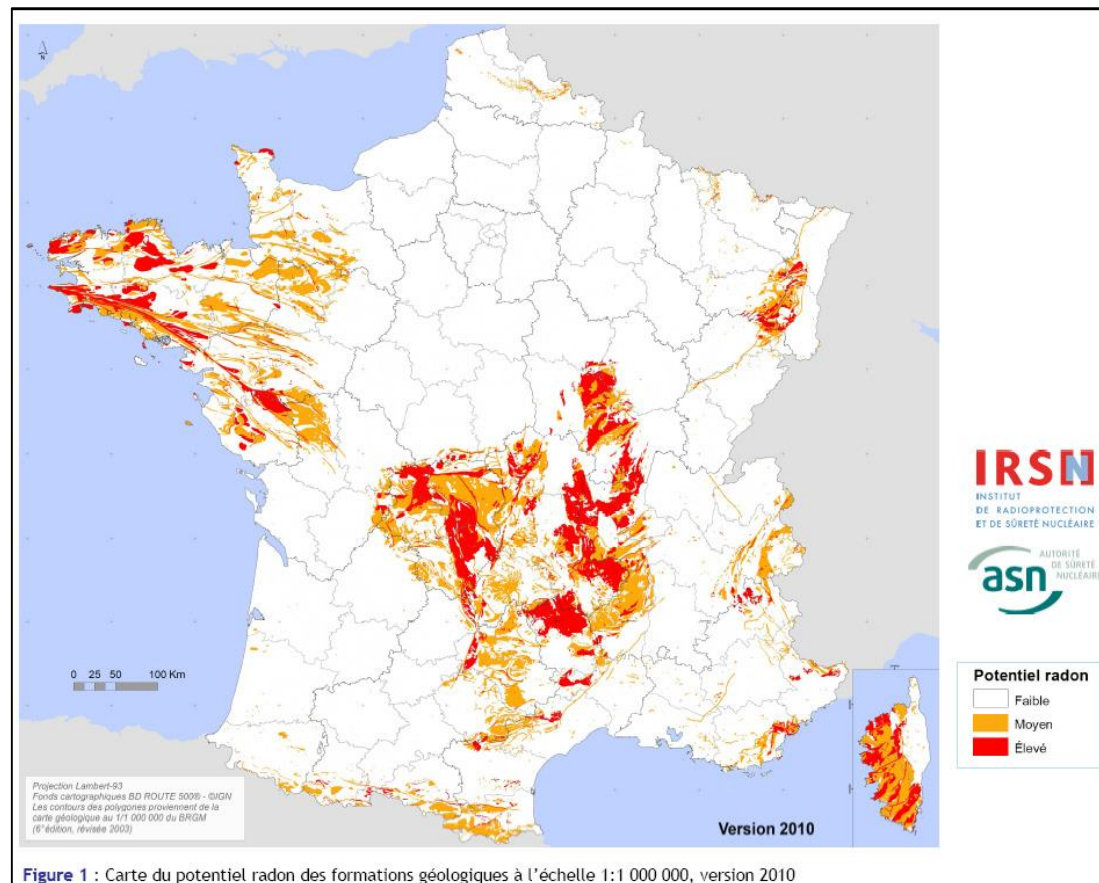


Figure 1 : Carte du potentiel radon des formations géologiques à l'échelle 1:1 000 000, version 2010

# Signs of improvement

↗ **A very high « don't know » level …**

↗ **… that used to be even higher!**

Numbers that are today around 20 %
used to be around 40 and 50 %

↗ **Cause of the reduction?**

→ **Sudden rise in French arrogance?**

→ **Methodologic effect in « don't know » treatment?**

→ **Effectiveness of the growing number of actions designed to raise awareness in the affected areas?**

  ▮ 1990s: European recommendations on indoor radon

  ▮ 2000s: French regulations (2002 *décrêt*, 2004-2008 *arrêtés*, PNSE 1(2004-2008) and following, 2016 ordinance…)

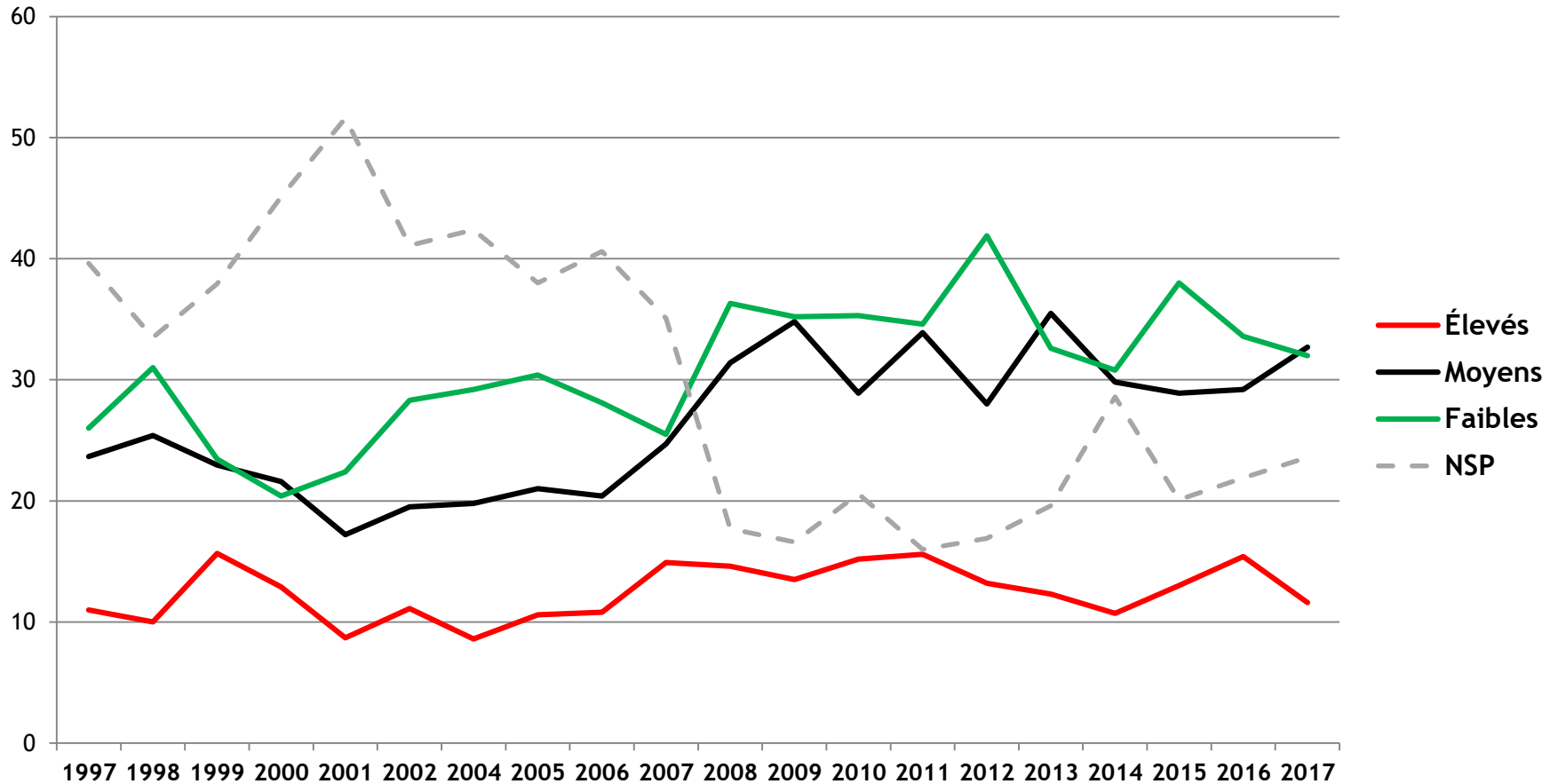  ▮ 2010s: growing targeted communication on indoor radon risk (cf. pilot program in Haute-Vienne)
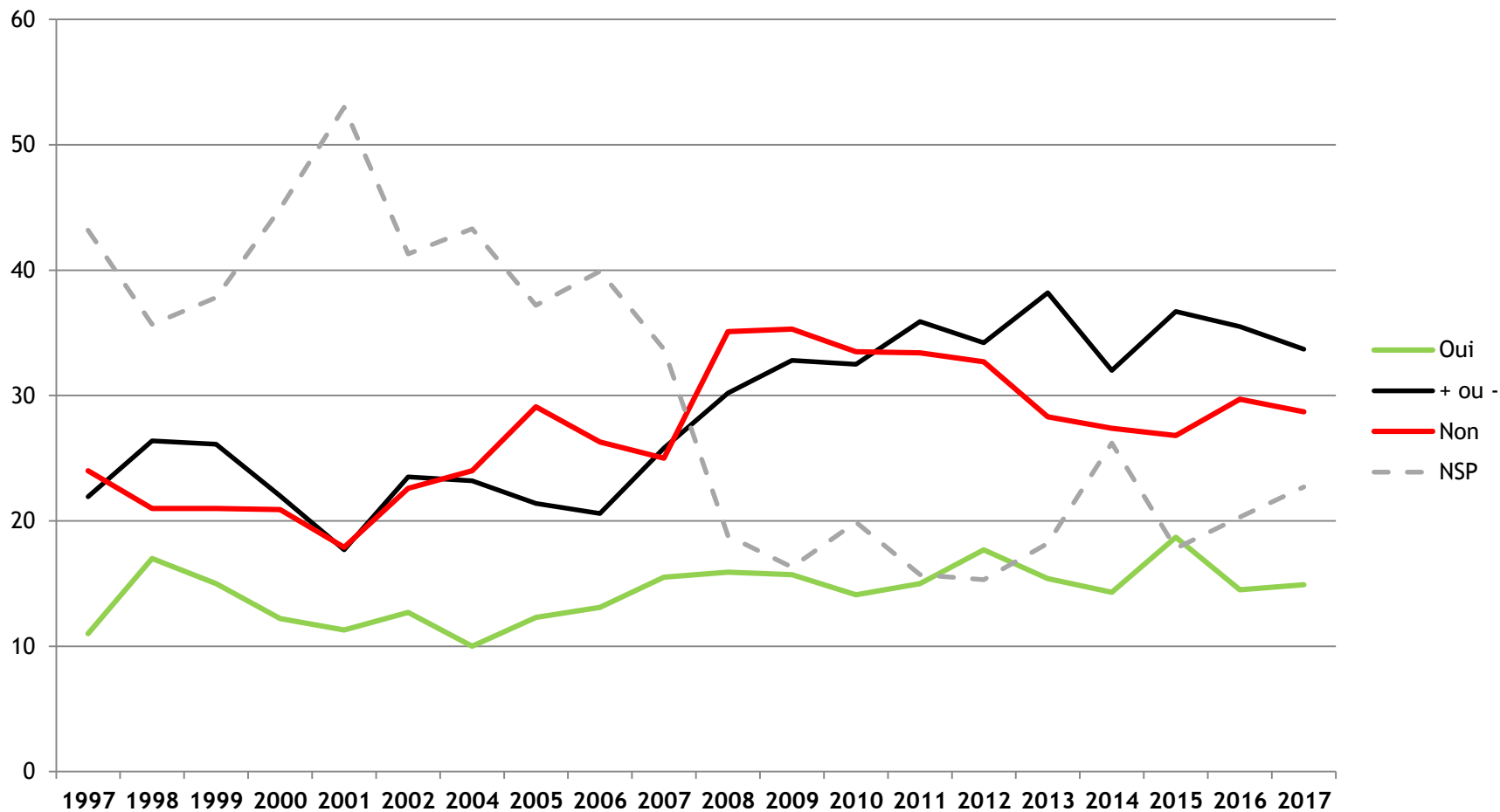
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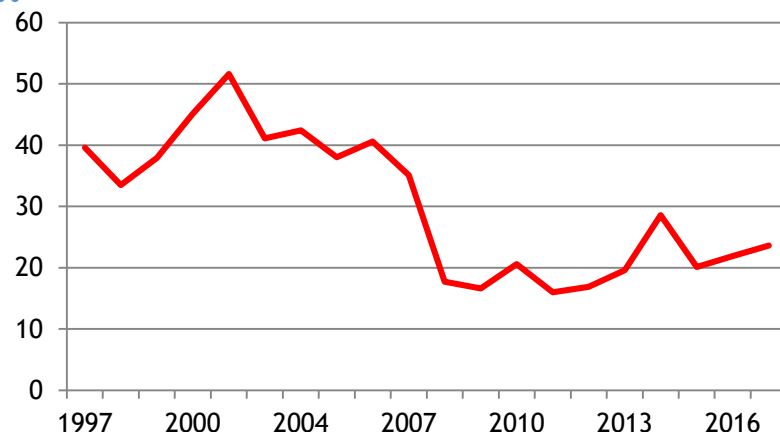
# Potential next steps

↗ **Continued monitoring of the « don't know » scores**

▍Check if the levels stay the same, decrease or increase

↗ **Addition of a qualitative question on indoor radon**

▍Get a better sense of the indoor radon knowledge… and potentially see the « don't know » scores increase as a result

↗ **Create a specific panel within radon affected areas**

▍Compare the knowledge level on indoor radon between the general public and the affected areas

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# Thank you!

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# Radon - seriousness of risk

# Radon – trust in the authorities



Legend:
- Oui (green)
- + ou - (black)
- Non (red)
- NSP (grey dashed)

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# Radon – credibility of the information