



The decision to extend the operational life of two nuclear power plants in Belgium: the opt-out on the phase-out?

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Nuclear energy in Belgium

Nuclear reactors in Belgium

Reactor	First Power	Status
Doel 1	1974	● active
Doel 2	1975	● active
Doel 3	1982	● active
Doel 4	1985	● active

Reactor	First power	Status
Tihange 1	1975	● active
Tihange 2	1982	● active
Tihange 3	1985	● active

Electricity production in 2013 (Total 84 TWh)

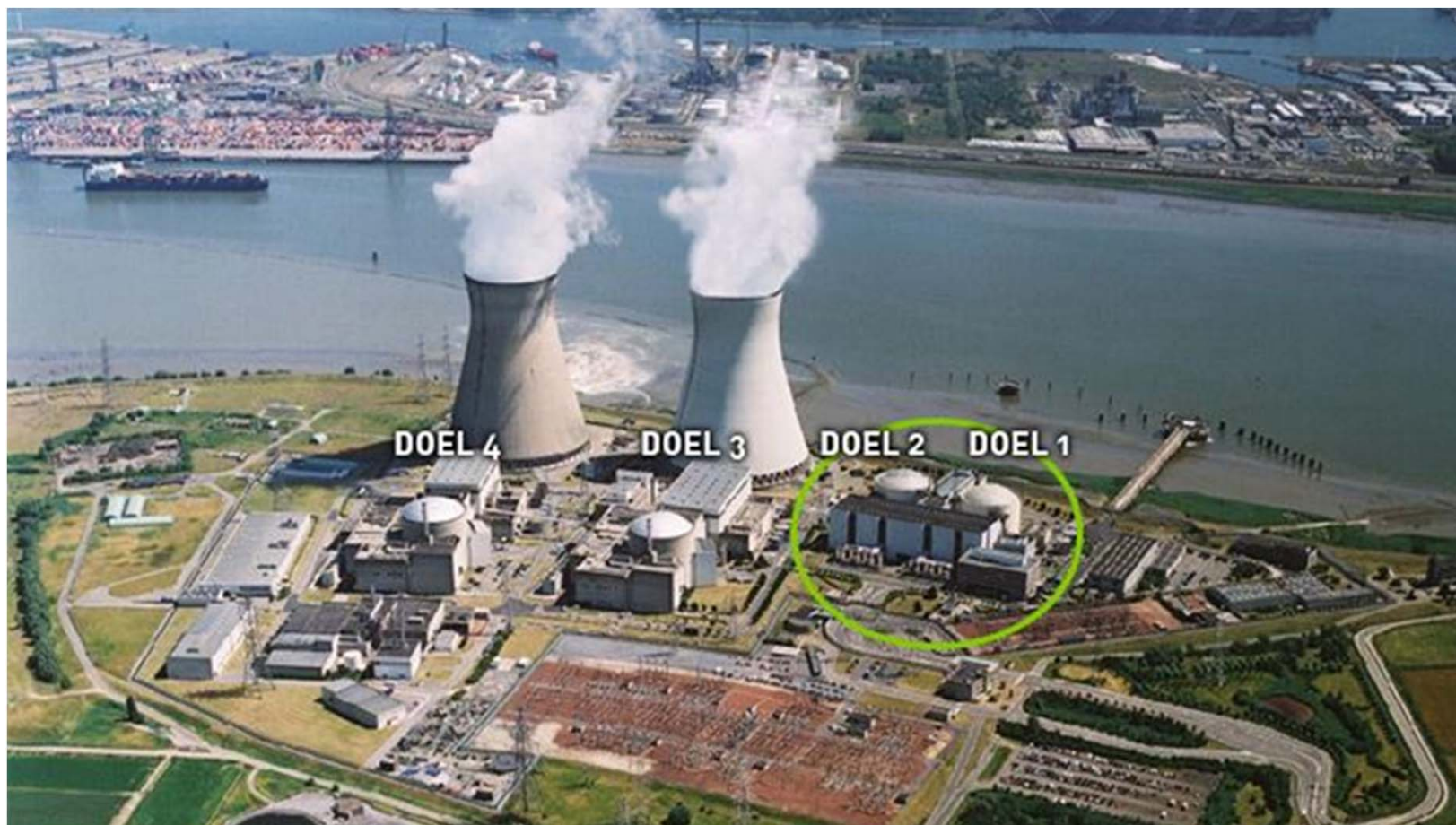
Nuclear	42.6 TWh
Natural gas	21.9 TWh
Biofuels & wastes	6 TWh
Coal	5.2 TWh
Wind/solar	6 TWh
Hydro	1.7 TWh
Net electricity imports	9.6 TWh

Nuclear reactors in Belgium are licensed to operate for 40 years.

Source: Electrabel/World Nuclear Association, December 2015

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10 more years for Doel 1 and Doel 2?



Policy change?

- Decision to keep Doel 1 and Doel 2 until 2025
 - Previously: to close by 2015
- 2003 phase-out law
 - Moratorium on new build
 - Maximum operational life = 40 years (2015)

Policy change?

- Decision to keep Doel 1 and Doel 2 until 2025
 - Previous decision: to close by 2015



Is this decision an opt-out on the phase-out?

- 2003 phase-out law
 - Moratorium on new build
 - Maximum operational life = 40 years (2015)

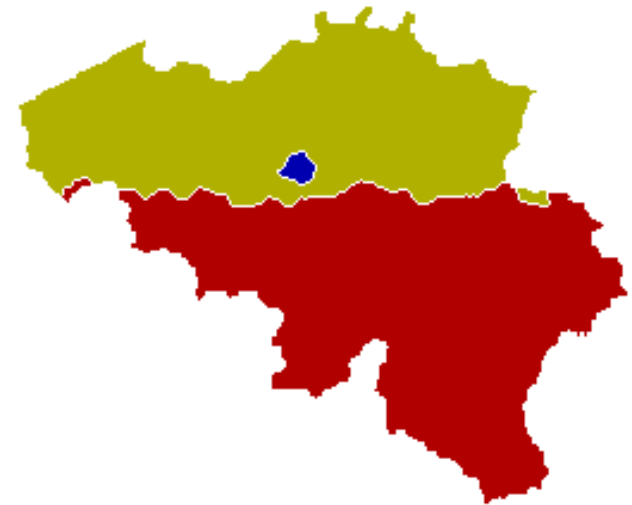
- ... of the research:
 - Understand the politics behind nuclear energy policy;
 - Study relationship between political parties & public opinion.
- ... of the presentation:
 - Explain decision within historical context;
 - Explain political debate on nuclear energy;
 - Explain public opinion on nuclear energy;
 - Reflect on how these factors interact.

Theoretical framework

- Issue attention cycle (Downs, 1972)
- Party competition
 - Increased focus on issues (Green-Pedersen, 2007)
 - Mainstream parties vs. niche parties (Green-Pedersen, 2012)
- Public opinion
- Policy responsiveness (Soroka and Wlezien, 2005)
- Policy style (Rüdig, 1987)
- Institutional and societal context (Kriesi et al. 1995)

Politics in Belgium

- Consociational democracy (Lijphart, 2012)
- Federal State since 1993
 - 6 parliaments and governments
 - 2 regions: Walloon Region, Brussels Capital Region
 - 3 communities: Flemish, French, German
- Representative democracy
 - Proportional representation
 - Coalition government
- Partitocracy (Deschouwer, 2009)



Politics in Belgium: nuclear energy

- Electricity production = shared responsibility (1980)
- Nuclear energy → federal responsibility
 - Nuclear safety
 - Minister of Interior
 - Federal Agency Nuclear Control
 - Nuclear energy production
 - Minister of Energy, Environment and Sustainable Development
 - Federal Public Service (FPS) Economy, SMEs, Self-Employed and Energy
- Government-industry decisions
 - Pax Electrica

Political parties & position on nuclear energy (1/2)

- Partirep survey 2014: voting aid application
 - 'Nuclear power plants should remain in operation' (Yes/No)
 - Motivation



	Disagree	Agree
Flanders	Groen (Greens) sp.a (Socialists) <i>PVDA</i> (Communists) Open VLD (Liberals)	CD&V (Christian-Democrats) N-VA (Flemish nationalists) Vlaams Belang (Extreme right)
Wallonia	Ecolo (Greens) PS (Socialists) <i>PTB-GO</i> (Communists)	cdH (Christen-Democrats) MR (Liberals) FDF (French speaking nationalists)

Political parties & nuclear energy: position (2/2)

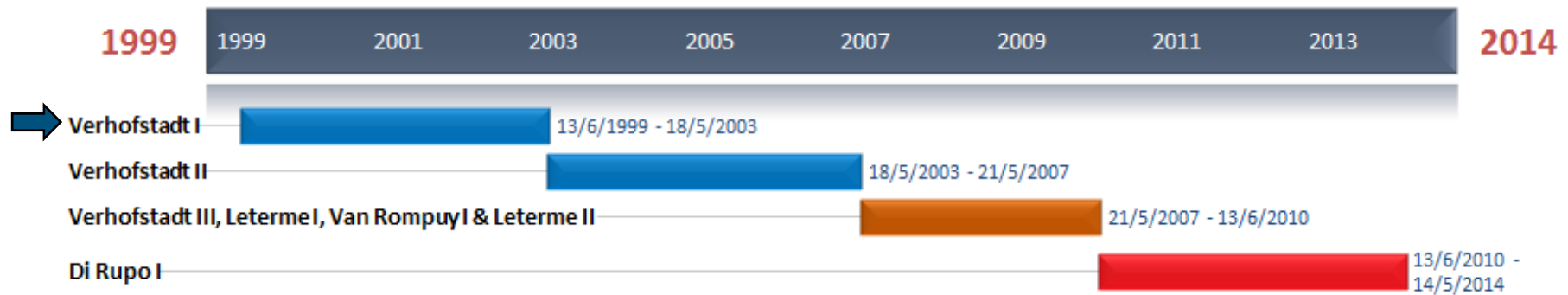


- Clear cut division?
 - Left-right division
 - Libertarian- authoritarian division
- Polarization (Laes et al., 2008)

Political parties & nuclear energy: motivation

		
Energy security	Alternatives available	Alternatives not sufficient
Electricity cost	Nuclear energy is expensive	Nuclear electricity is affordable
Safety concerns	Risk; old technology	
Environmental concerns	Radioactive waste	Reduce CO ² emissions
Development argument	Need to create investment climate for renewables	
Energy independence		Not depend on import

Nuclear energy policy: 1999 - 2003

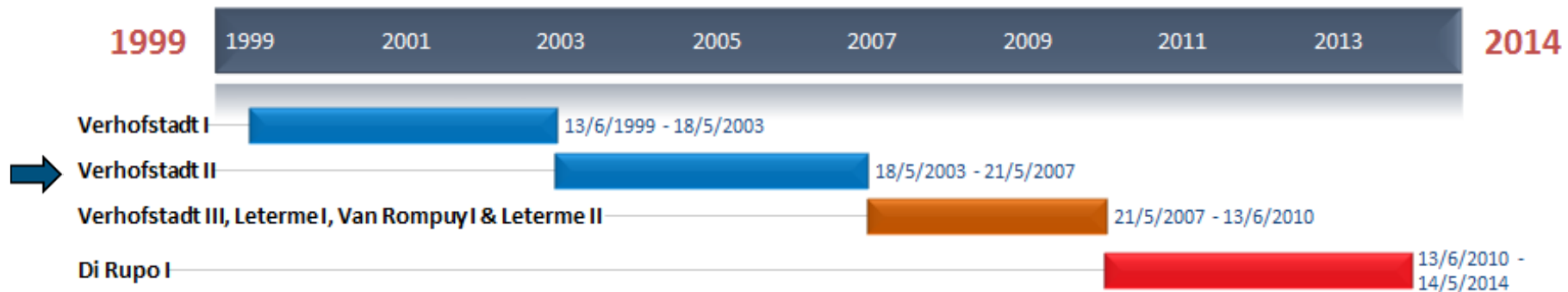


- Verhofstadt I

- Liberals; Socialists and Greens (Purple Green)
- Phase-out law (2003)
- "Reduction of NPPs is a good cause" (2002)
 - **Agree: 66%**
 - Undecided: 18%
 - Disagree: 12%

Source for public opinion data: SCK•CEN Barometer 2002

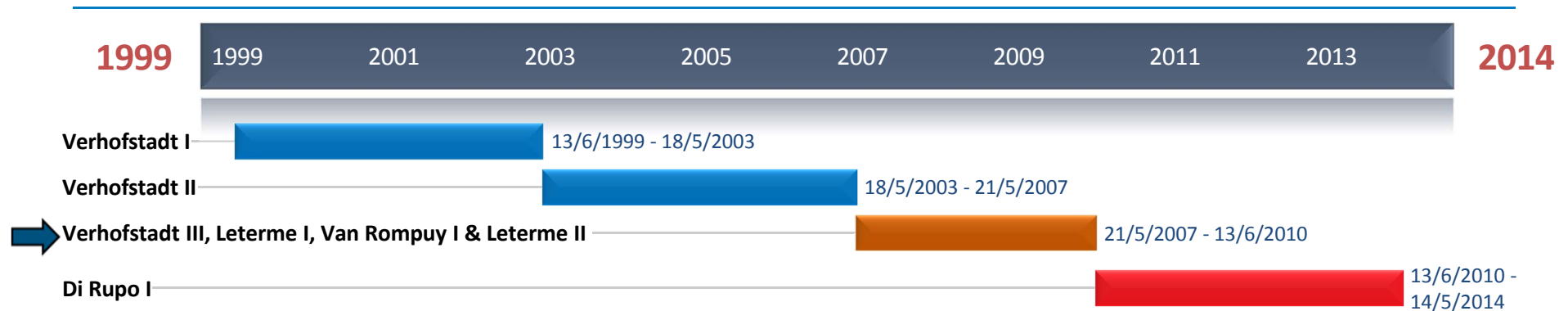
Nuclear energy policy: 2003-2007



- Verhofstadt II
 - Purple – Greens out
 - Little political debate
 - “Reduction of NPPs is a good cause” (2006)
 - **Agree: 51%** (change 2002: -15%)
 - Undecided: 27% (change 2002: +9%)
 - Disagree: 21% (change 2002: +9%)

Source for public opinion data: SCK•CEN Barometer 2006

Nuclear energy policy: 2007-2010



- Verhofstadt I [...] Leterme II
 - Christian-Democrats; Socialists (PS) and Liberals
 - Agreement & decision to extend oldest 3 reactors
 - "Reduction of NPPs is a good cause" (2009)
 - **Agree: 47%** (change 2006: -5%)
 - Undecided: 28% (change 2006: +1%)
 - Disagree: 19% (change 2006: +2%)

Source for public opinion data: SCK•CEN Barometer 2009

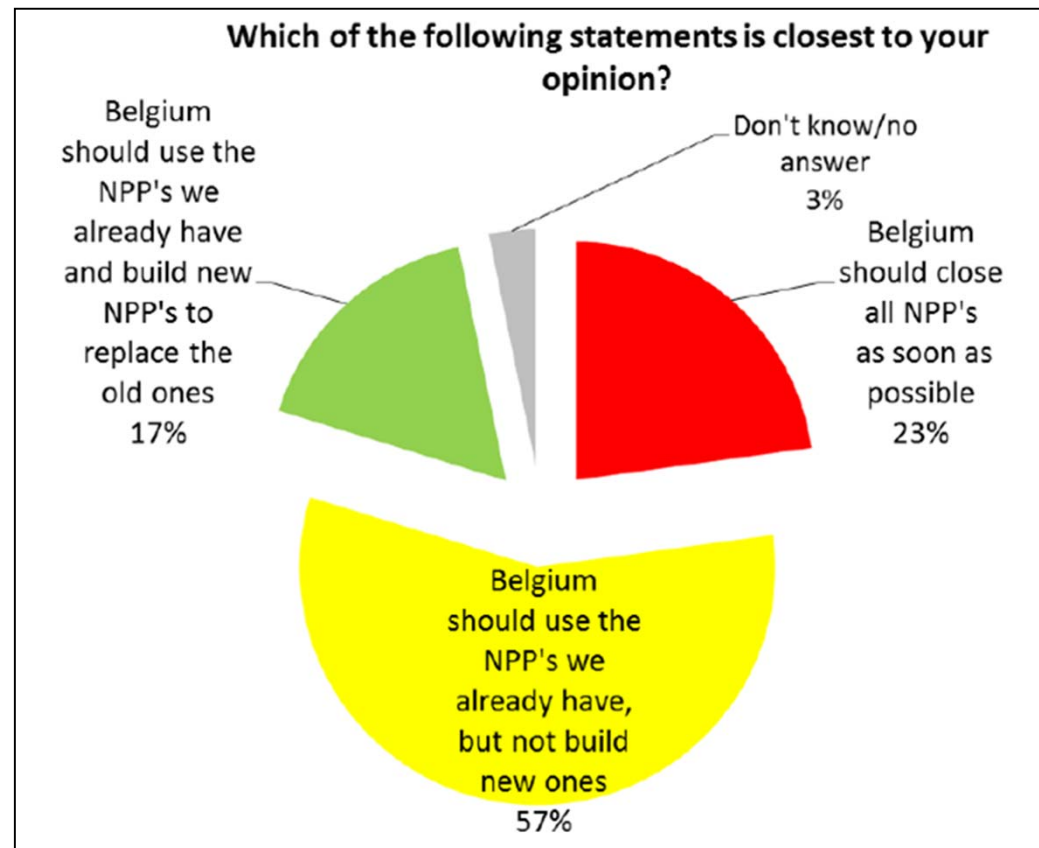
Nuclear energy policy: 2010-2014



- Di Rupo I
 - Christian-Democrats; Socialists and Liberals
 - Stress-tests
 - +10 years for Tihange I
 - "Reduction of NPPs is a good cause"
 - **Agree: 61% (2011); 61% (2013)**
 - Undecided: 20% (2011); 23% (2013)
 - Disagree: 16% (2011); 14% (2013)

Source for public opinion data: SCK•CEN Barometer 2011; 2013

Future of nuclear energy anno 2013

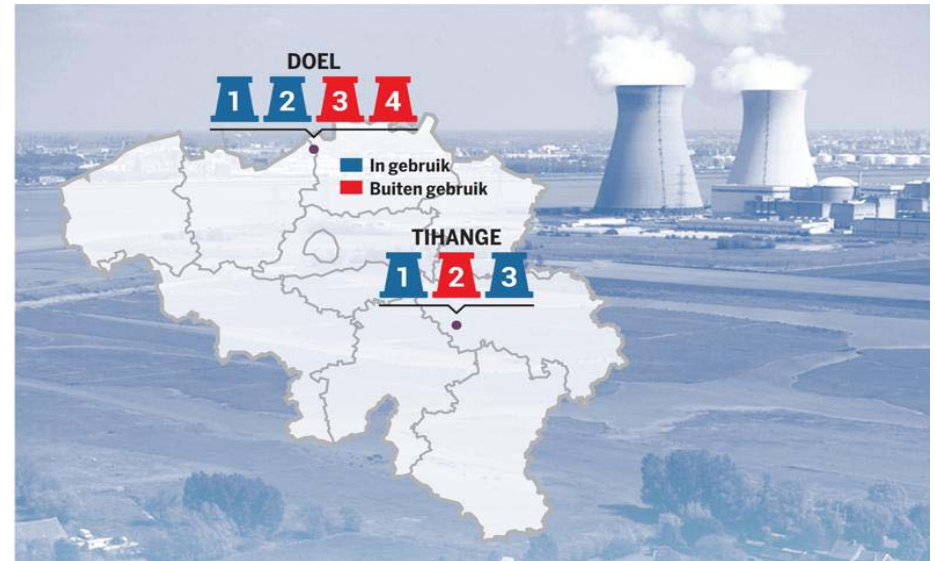


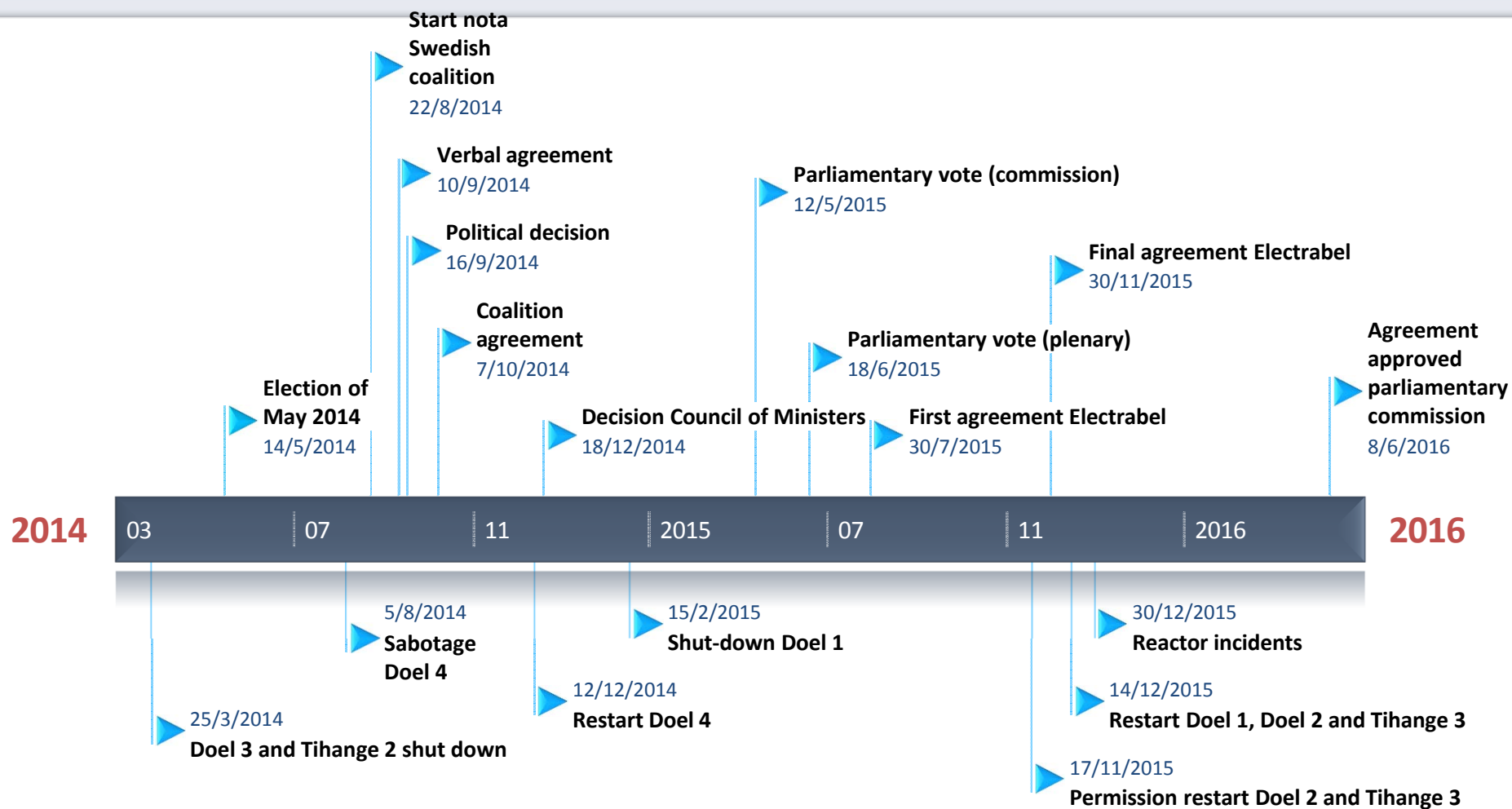
Opinion about future nuclear policy in Belgium 2013 (N=1002)

Source: SCK•CEN Barometer 2013

Nuclear energy policy: 2014-2019

- May 2014 “Mother of all elections”
 - Flemish majority for Flemish Nationalist Party N-VA (32,5%)
- Centre-right government: Michel I
 - Pro-nuclear coalition
- Nuclear energy policy:
 - Doel 4 sabotage
 - Doel 1 and Doel 2: +10 years
 - Phase-out 2025
- Period of increased issue salience





Politicization of nuclear energy (1/2)

- Political decisions by power triad
 - Government, Electrabel and FANC
- Polarization
 - Anti-nuclear opposition
 - Pro-nuclear government
- Politicization
 - Sub-debates: winter is coming; safety debate; security debate; economical debate; political conduct
 - Media-framing
 - Politique politicienne
 - Also by government!



Politicization of nuclear energy (2/2)

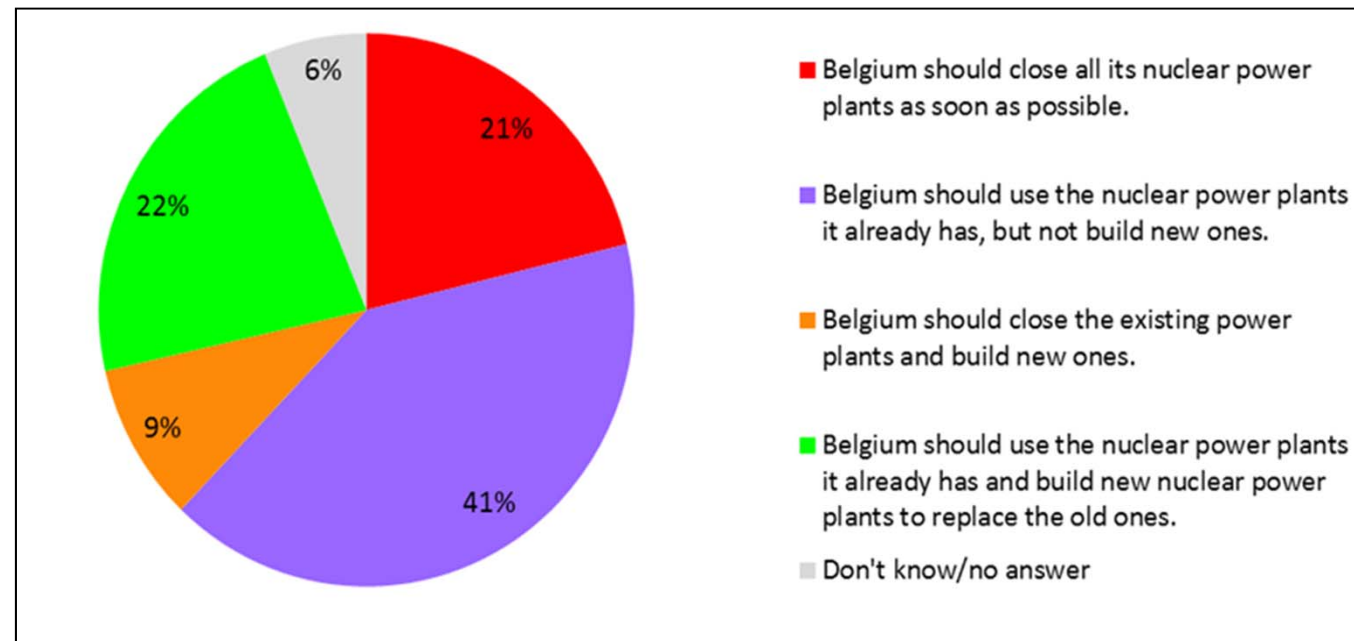
- Politicization via other venues
 - Legal venues
 - International pressure
- And public opinion?
 - Absent
 - Protest events (12/03/2016)
 - Campaigns of Nuclear Forum
 - Actions of political parties
 - Debate about Aarhus/Espoo



The public and nuclear energy

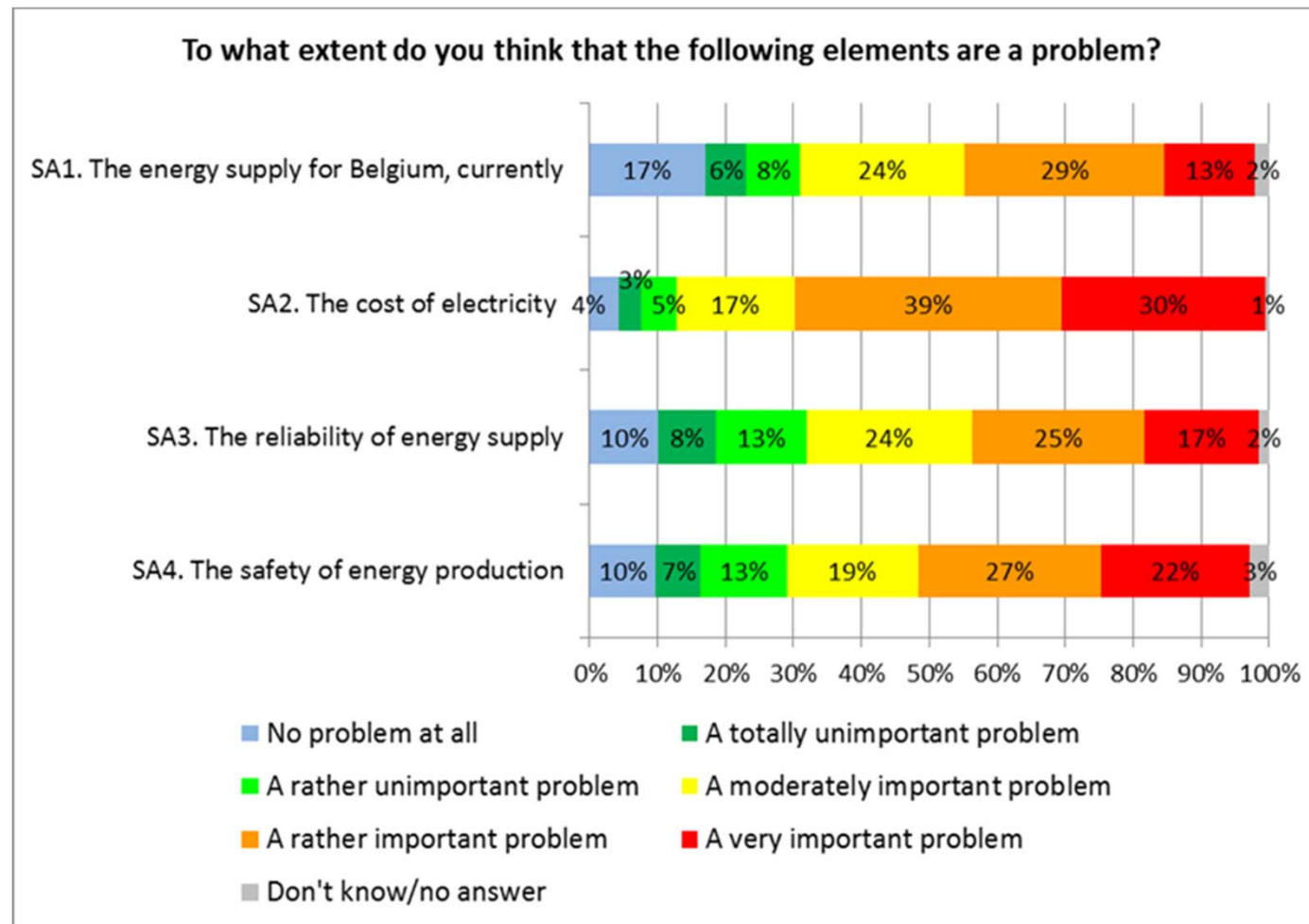
- “Reduction of NPPs is a good cause”
 - **Agree: 58%** (change 2013: -3%)
 - Undecided: 20% (change 2013: -3%)
 - Disagree: 18% (change 2013: +4%)

Opinion about
future nuclear
policy in Belgium
2015 (N=1028;
weighted)



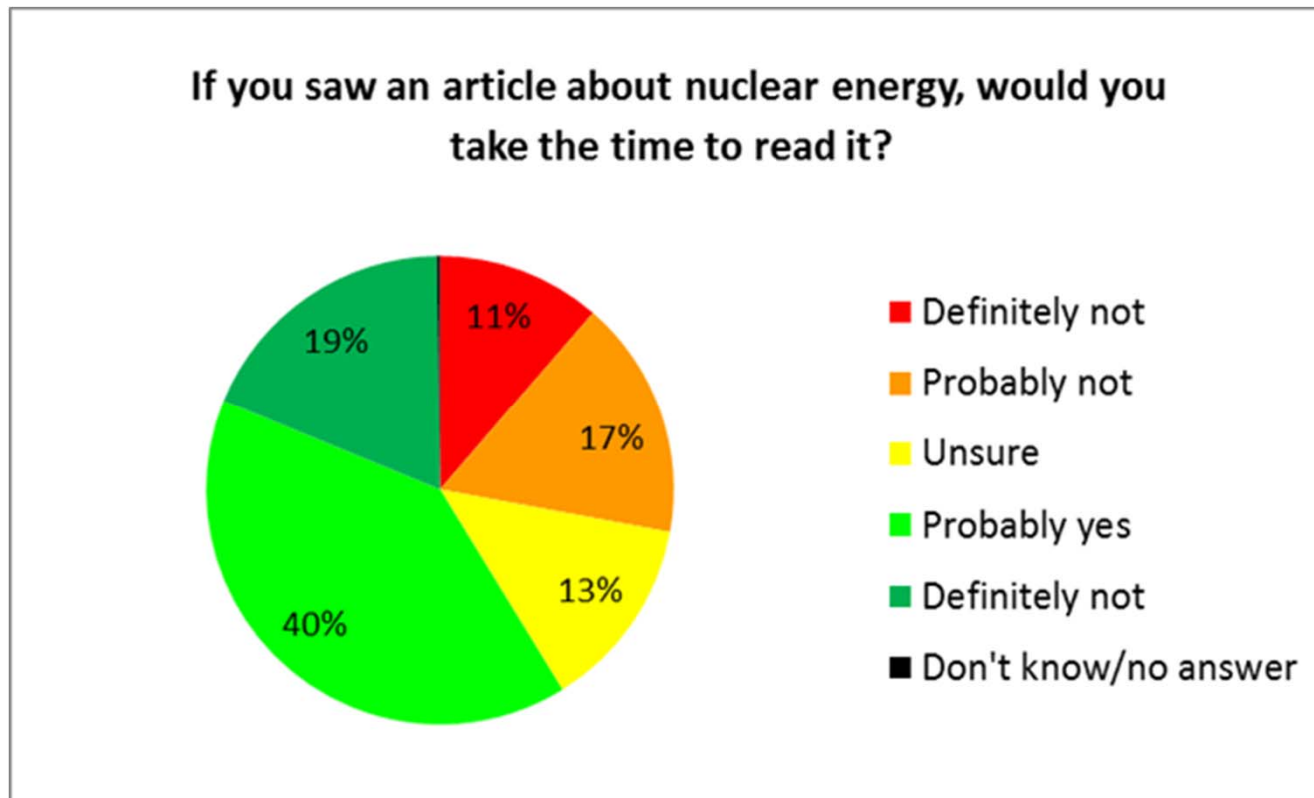
Source: SCK•CEN Barometer 2015

Public opinion on nuclear energy



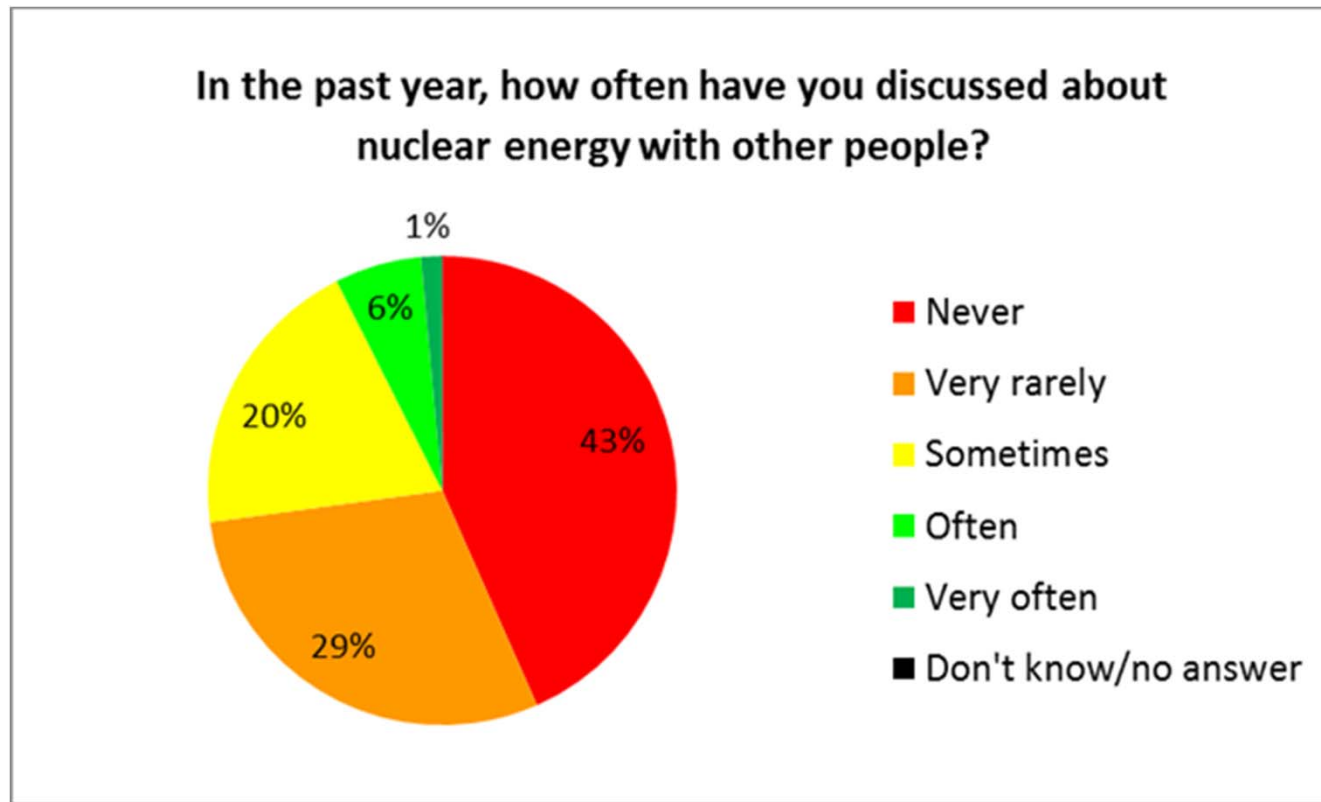
Perception of energy issues (N=1028; weighted)

The public and nuclear energy



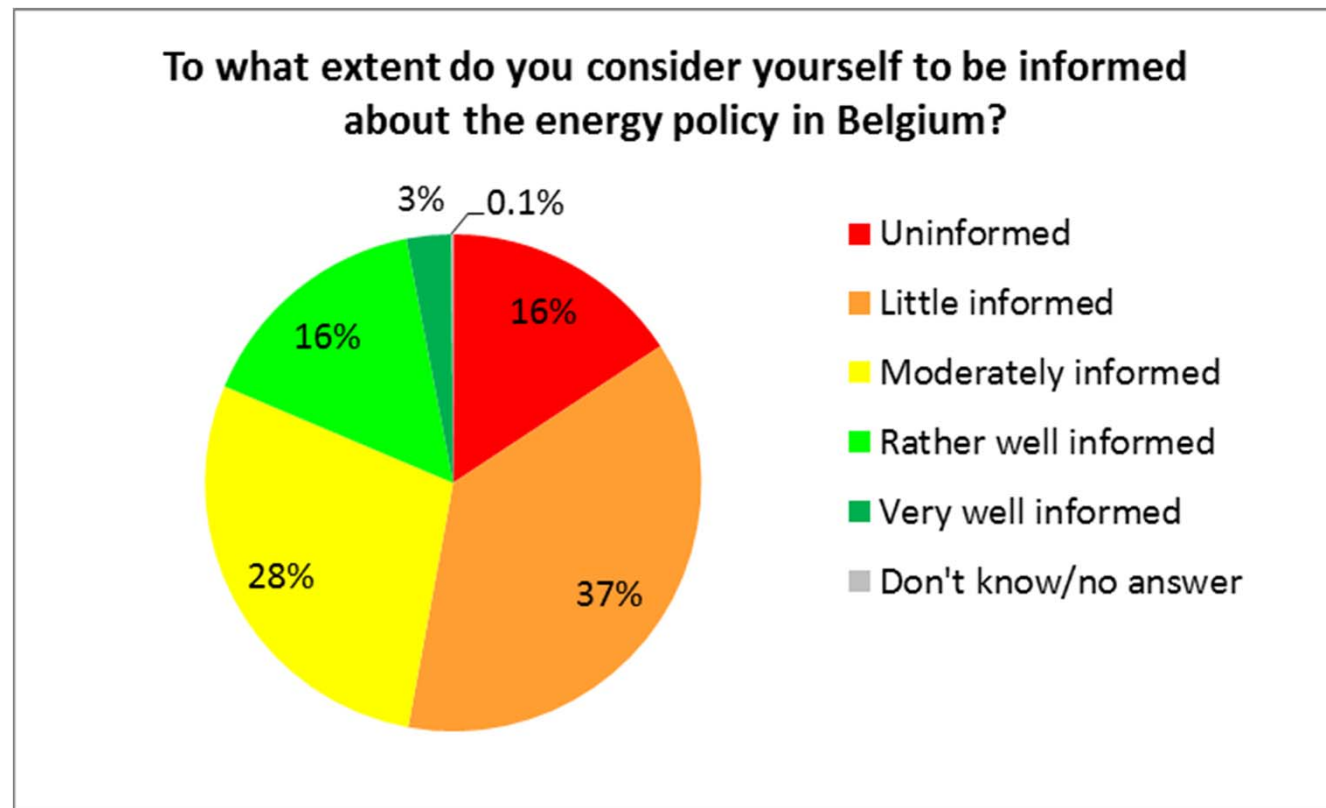
Willingness to get informed about nuclear energy 2015 (N=1028; weighted)

The public and nuclear energy



Interest in the topic of nuclear energy 2015 (N=1028; weighted)

The public and nuclear energy

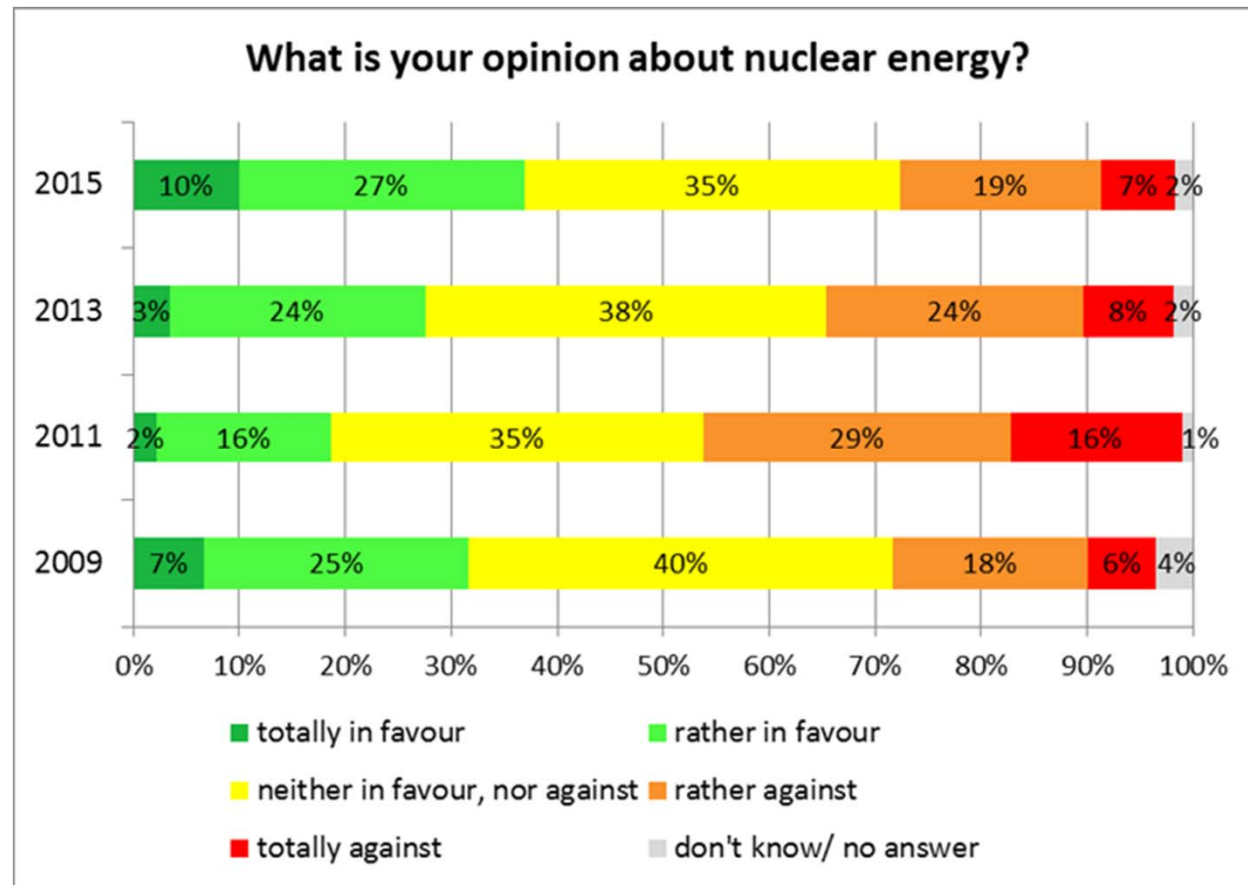


Perceived level of information Belgian energy policy 2015 (N=1028, weighted)

Take-away message

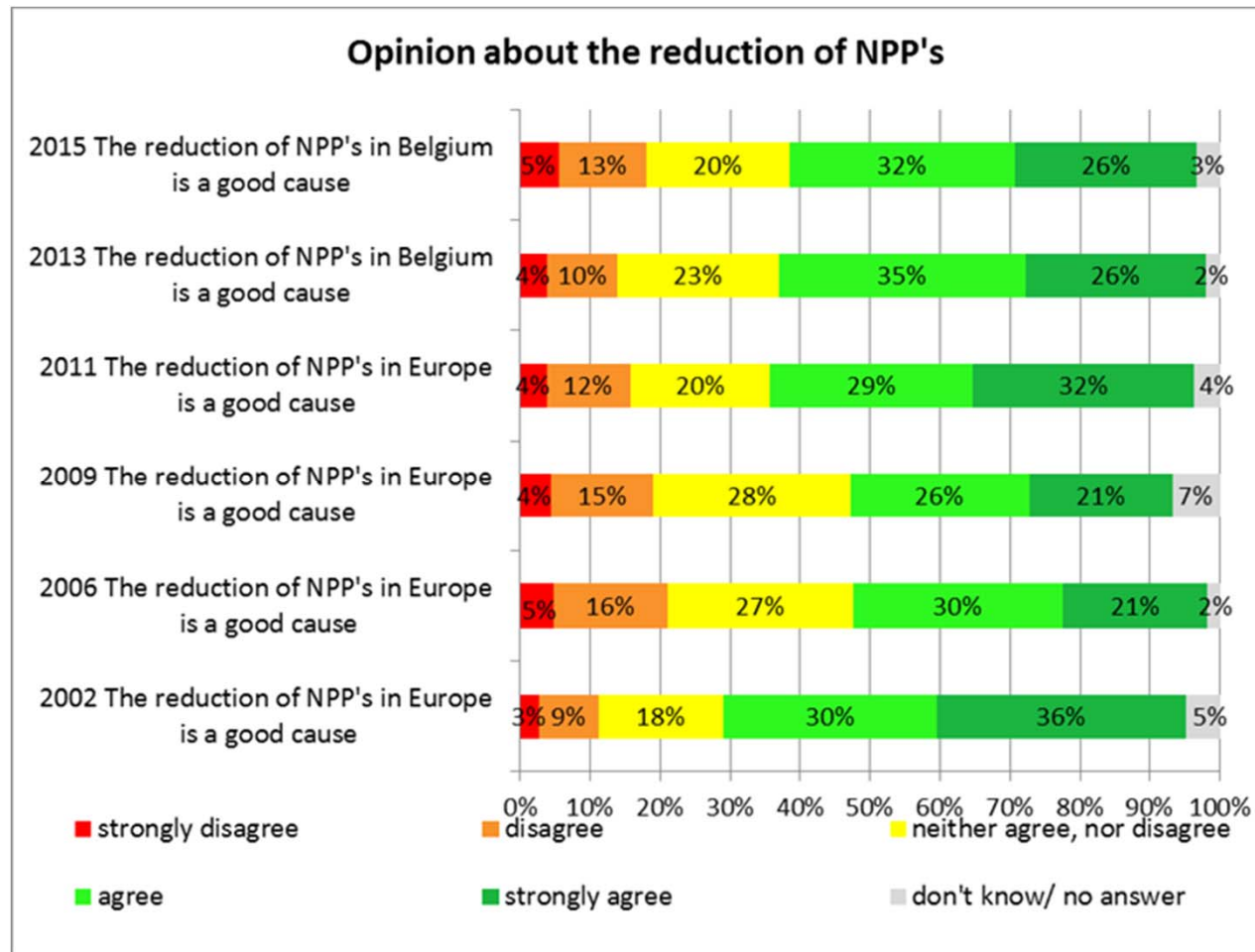
- Decision Doel 1 and 2
 - Long political debate
 - Clear policy decision (phase-out by 2003 → 2025)
 - But...
- Opt-out on phase-out?
 - Depends on whom you ask
- Future of nuclear energy unclear
 - New elements: international concerns, IEA review 2016, security
 - Less salient at the moment
- Need for public debate & improved understanding public-politics relationship

The public and nuclear energy



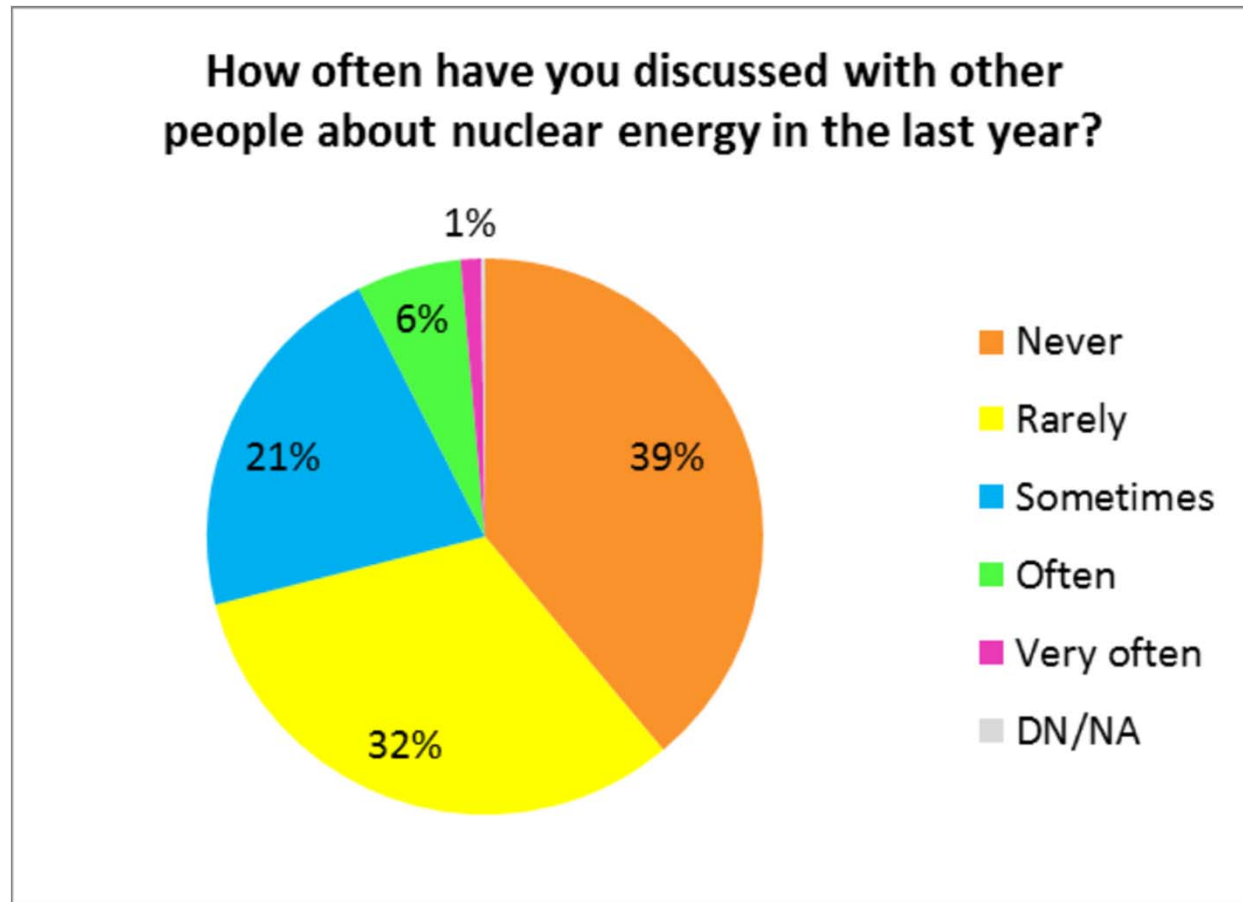
Opinion about nuclear energy in 2009, 2011, 2013 & 2015 (N>1000, weighted)

The public and nuclear energy

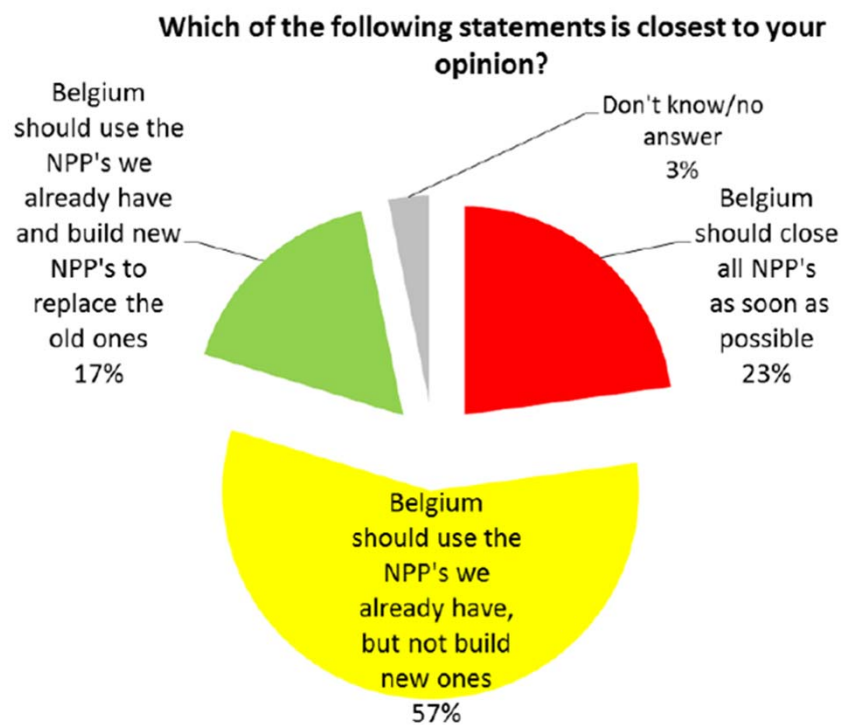


Reduction of nuclear power plants (N>1000)

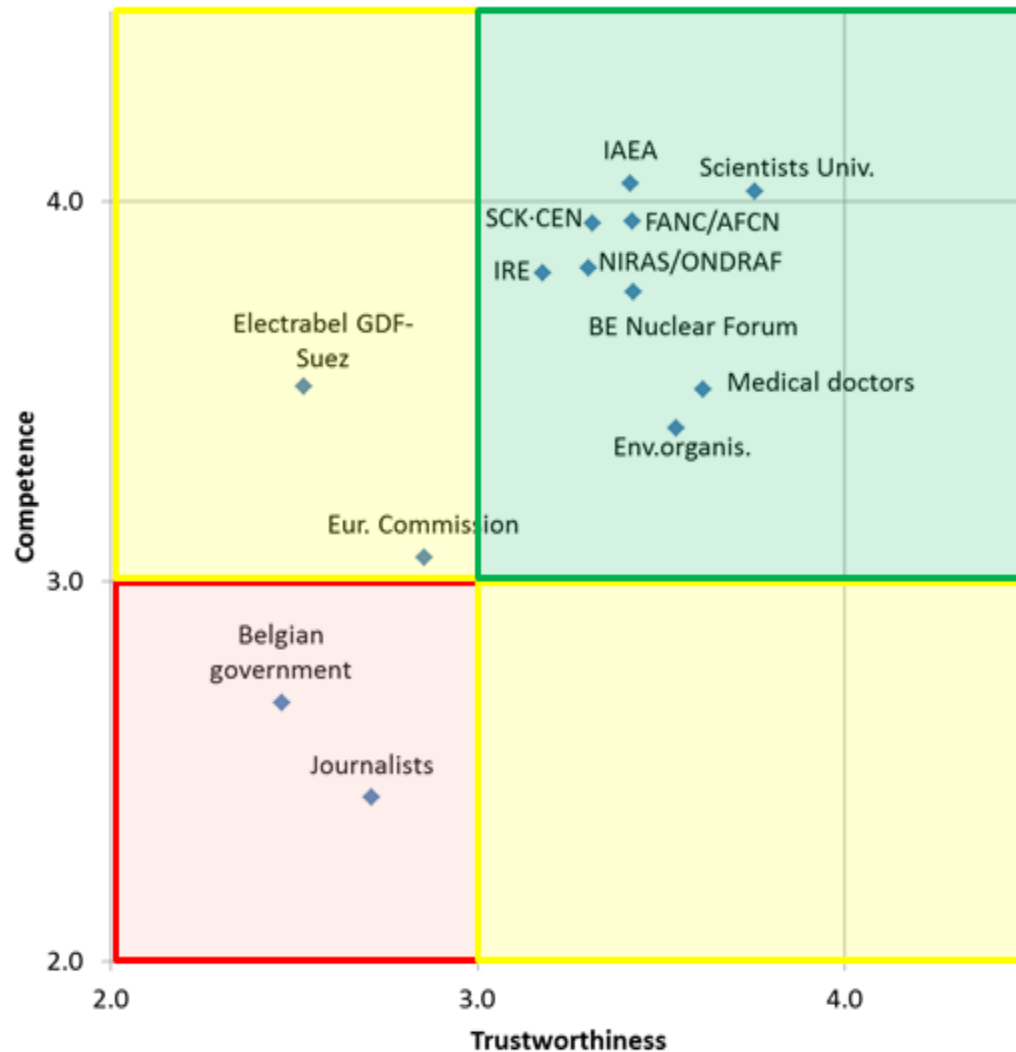
The public and nuclear energy policy



Discussion about nuclear energy 2013 (N=1002)



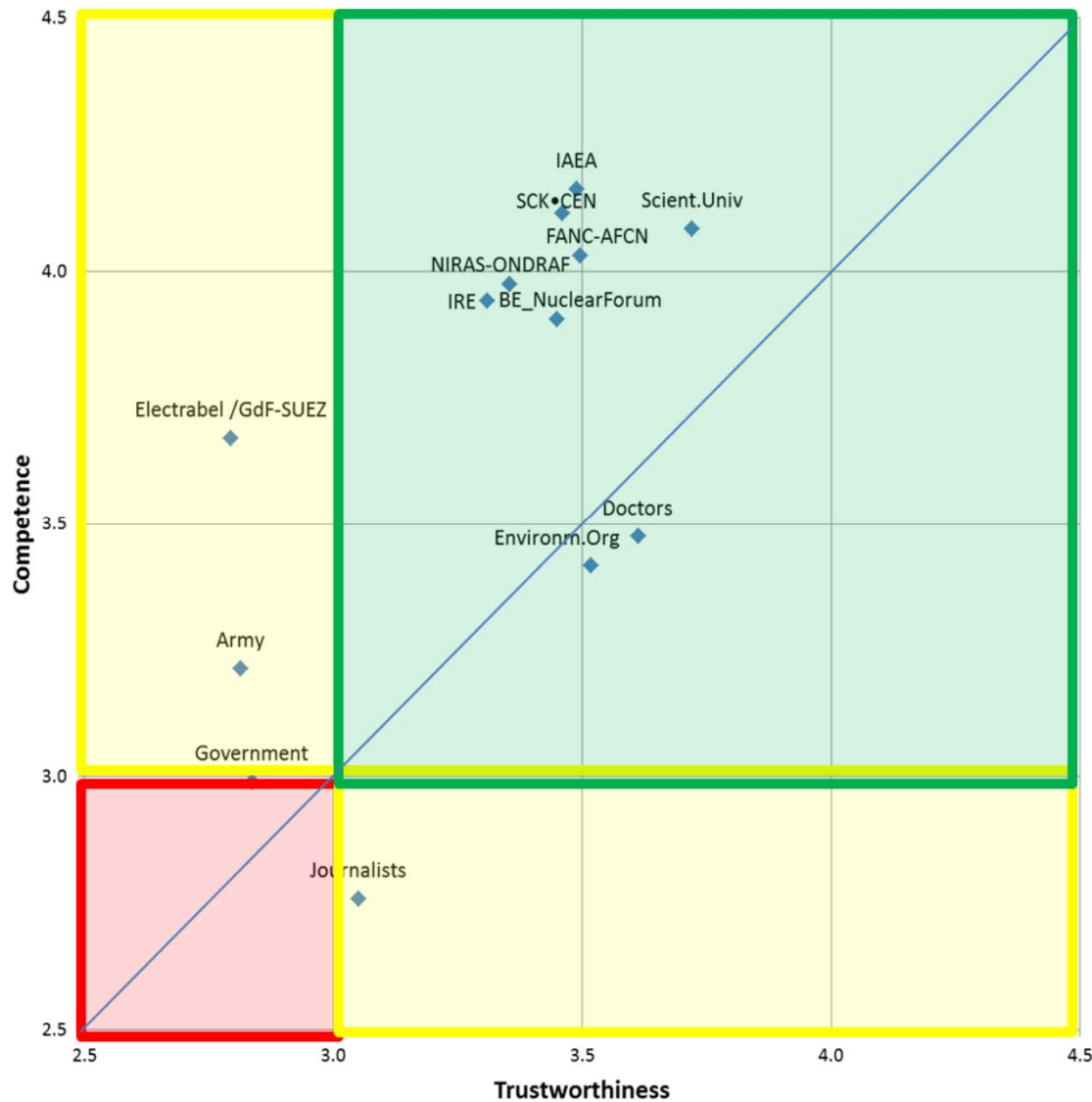
Trustworthiness and competence as regards risks and benefits of nuclear technology



Trustworthiness vs. competence of nuclear actors 2015 (weighed)

- Red rectangle: both scores below scale middle point;
- Yellow rectangle: only one score below middle point;
- Green rectangle: all scores above middle point

Trustworthiness and competence as regards risks and benefits of nuclear technology



Trustworthiness vs. competence of nuclear actors 2013

- Red rectangle: both scores below scale middle point;
- yellow rectangle: only one score below middle point;
- green rectangle: all scores above middle point

Overview incidents nuclear power plants (1/2)

Date	Date	Incident
Summer 2012	Tihange 2 and Doel 3	Closed due to 'cracks'
Summer 2013	Tihange 2 and Doel 3	Restart after closure in summer 2012
March 2014	Tihange 2 and Doel 3	Closed after additional tests
05/08/14	Doel 4	Shut-down due after sabotage
30/11/14	Tihange 3	Fire in non-nuclear zone
02/12/14	Tihange 3	Restarted after fire 30/11/14
19/12/14	Doel 4	Restarted (closes since 05/08/14)
15/02/15	Doel 1	Closed based on decision Di Rupo 1
13/08/15	Tihange 3	Automatic shutdown while preparing for maintenance work
18/09/15	Tihange 1	Technical defect
31/10/15	Doel 1	Explosion of alternator + fire

Overview incidents nuclear power plants (2/2)

Date	Date	Incident
14/12/15	Tihange 2	Restarted since march 2014
20/12/15	Doel 3	Restarted since march 2014
24/12/15	Doel 2	Restarted since start 11/15 (turned 40)
24/12/15	Tihange 1	Automatic shut-down non-nuclear area
25/12/15	Doel 3	Shut-down due to leakage (non-nuclear)
26/12/15	Tihange 1	Restarted (since technical defect)
30/12/15	Doel 1	Restarted
02/01/16	Doel 1	Incident
06/01/16	Doel 3	Restarted after leakage 25/12
24/01/16	Tihange2	Reduced capacity due to water leakage
13/03/16	Doel 1 & 2	Shut-down for maintenance
24/04/16	Doel 3	Restarted since

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