‘Policy and public opinion on nuclear power’

Wageningen University, June 25 2014

Laka analyses, informs and activates

LAKA

www.laka.org info@laka.org

War and Peace

From Manhattan Project to Bodega Bay

Laka, documentation and research center on nuclear power

1980- independent documentation center, clearinghouse, supporting activists

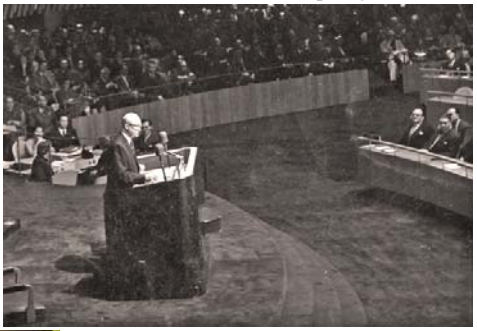
1- research/publications
2- information accessible
3- campaigning

Laka research & publications

- Civil and military use of depleted uranium
- History of nuclear power in the Netherlands (www.kernenergieinnederland.nl)
- Election programs political parties since 1952
- Monitoring decommissioning and decomtamination historical buildings
- Medical radioisotopes production without a nuclear reactor
- Free (daily) mailinglist with news (and analyses) about nuclear power in the Netherlands

Selling nuclear power

Atoms for Peace and Prosperity



Dec. 6, 1953; Eisenhower addresses General Assembly UN

- In 1954, Lewis Strauss, Chairman U.S. Atomic Energy Commission, proclaimed development of nuclear energy would herald a new age. "*It is not too much to expect that our children will enjoy in their homes electrical energy too cheap to meter*"
- Nuclear power was offered by its proponents as a panacea: "*it will give us all the power we need and more. Power seemingly without end . . . [p]ower to do everything man is destined to do. We have found what might be called perpetual youth.*"

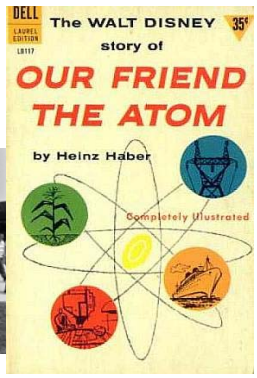
However...

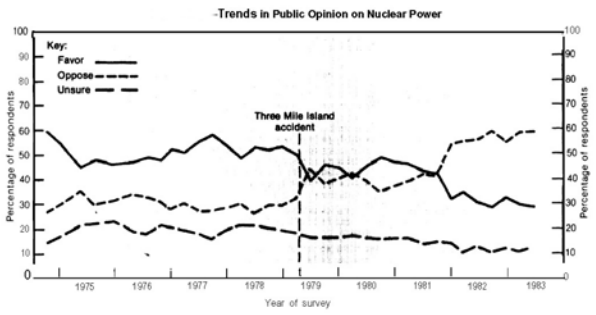
- First commercially NPP proposed in USA (1958, Bodega Bay) was cancelled in 1964 after protests.
- Birth of anti-nuclear movement

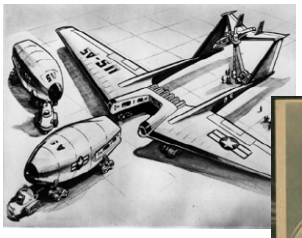
Times they are a changin...

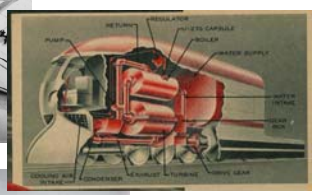
1962, start environmental movement

Exhibitions, cartoons & movies









Nuclear powered trains, cars and planes

USA: Expected nuclear capacity (1972)

Table XXI. *Nuclear Electrical Capacity in Gigawatts*

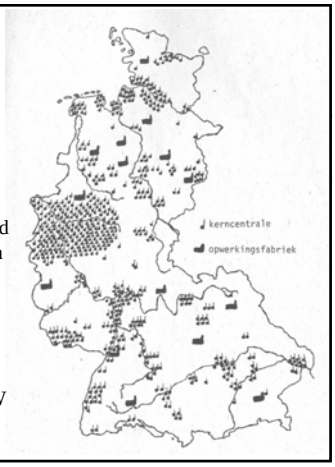
	1980	1985	1990	2000	2014
United States					
Most Likely	132	280	508	1200	
High	144	332	602	1500	
Low	127	256	412	825	
In reality:	51.5		100.6	97.4	99.0

Source: USAEC (United States Atomic Energy Commission) report: "Nuclear Power 1973-2000", document WASH-1139 (72). USAEC.

Germany:

In 1985 (1975): 52 GW

Picture: nuclear power plants and reprocessing plants in FRG in 2025 (expected in 1973)



Reality check

Capacity in 1985: 18.8 GW

Expected capacity 2025: 0.0 GW

Why did (& does) nuclear power fail to fulfill its promise?

Many reasons:

Too optimistic (or pure fantasy)

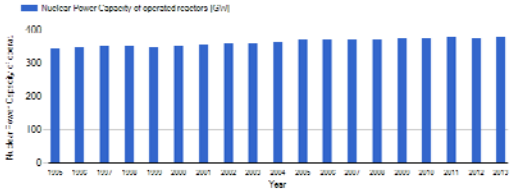
New technology (unforeseen problems)

Expected demand too high

Oil and coal lobby

Public opinion

Nuclear power statistics

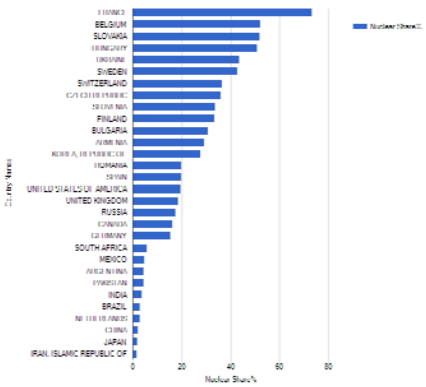


Year	Reactors	Capacity MW
1960	15	1087
1970	84	17656
1980	245	133037
1990	416	318253
2000	435	349999
2010	441	375277
2014	435	372812

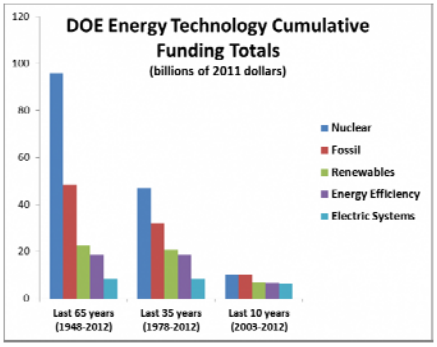
Change in public perception

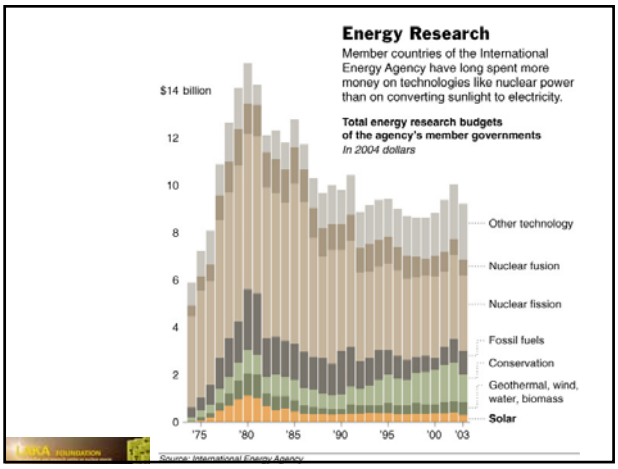
- Not delivering promises
- Incidents & accidents
- Proliferation/ radiation
- Costs
- Early protest

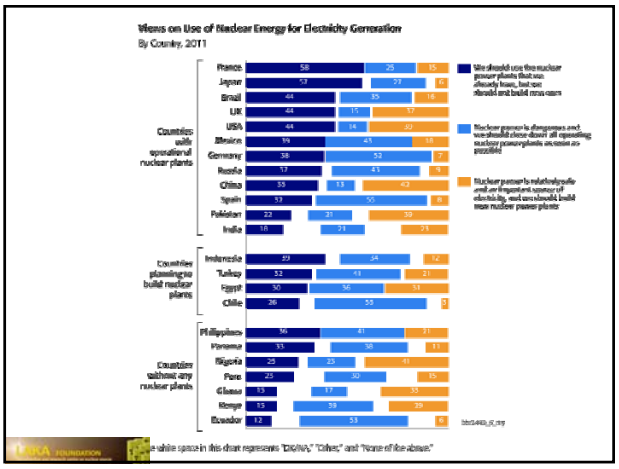
Nuclear power statistics

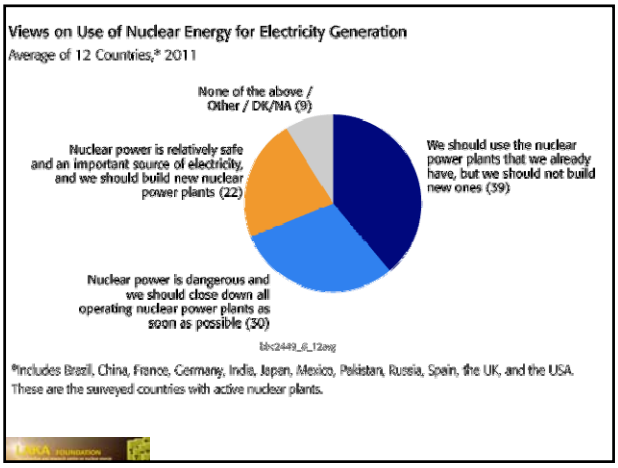


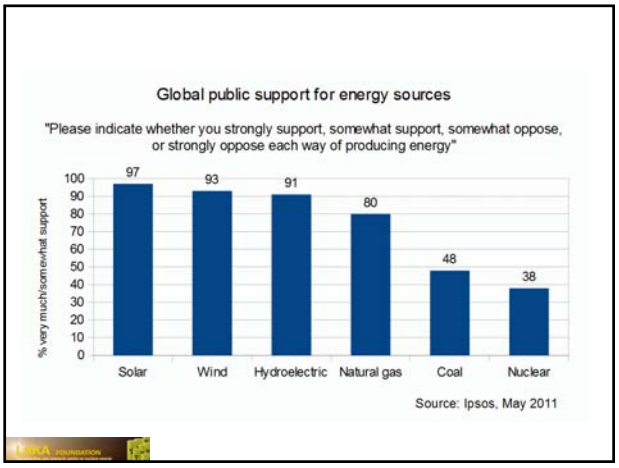
Nuclear did not deliver,
despite enormous public funding

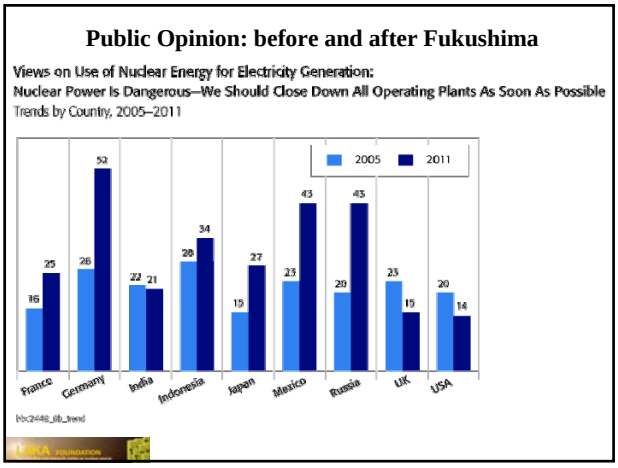


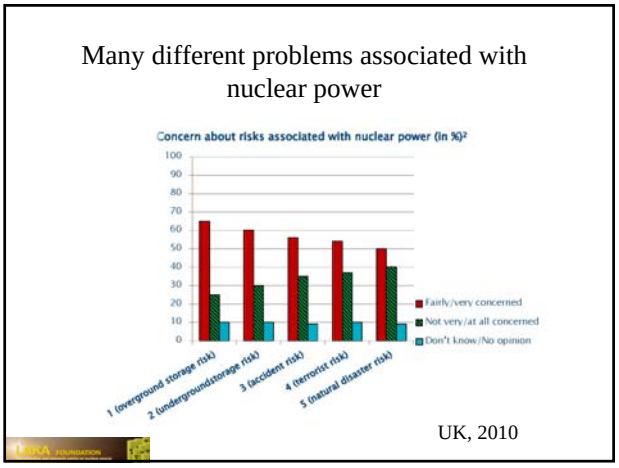

Energy Research
Member countries of the International Energy Agency have long spent more money on technologies like nuclear power than on converting sunlight to electricity.
Total energy research budgets of the agency's member governments
In 2004 dollars
$14 billion
12
10
8
6
4
2
0
'75
'80
'85
'90
'95
'00
'03
Other technology
Nuclear fusion
Nuclear fission
Fossil fuels
Conservation
Geothermal, wind, water, biomass
Solar


Views on Use of Nuclear Energy for Electricity Generation
By Country, 2011
Countries with operational nuclear plants
Countries planning to build nuclear plants
Countries without any nuclear plants


Views on Use of Nuclear Energy for Electricity Generation
Average of 12 Countries,* 2011
None of the above / Other / DK/NA (9)
Nuclear power is relatively safe and an important source of electricity, and we should build new nuclear power plants (22)
We should use the nuclear power plants that we already have, but we should not build new ones (39)
Nuclear power is dangerous and we should close down all operating nuclear power plants as soon as possible (30)
*Includes Brazil, China, France, Germany, India, Japan, Mexico, Pakistan, Russia, Spain, the UK, and the USA. These are the surveyed countries with active nuclear plants.


Global public support for energy sources
"Please indicate whether you strongly support, somewhat support, somewhat oppose, or strongly oppose each way of producing energy"
% very much/somewhat support
97
93
91
80
48
38
Solar
Wind
Hydroelectric
Natural gas
Coal
Nuclear
Source: Ipsos, May 2011


Public Opinion: before and after Fukushima
Views on Use of Nuclear Energy for Electricity Generation:
Nuclear Power Is Dangerous–We Should Close Down All Operating Plants As Soon As Possible
Trends by Country, 2005–2011
2005
2011
France
Germany
India
Indonesia
Japan
Mexico
Russia
UK
USA


Many different problems associated with nuclear power
Concern about risks associated with nuclear power (in %)²
Fairly/very concerned
Not very/at all concerned
Don't know/No opinion
1 (overground storage risk)
2 (underground storage risk)
3 (accident risk)
4 (terrorist risk)
5 (natural disaster risk)
UK, 2010

Policy and public opinion in The Netherlands

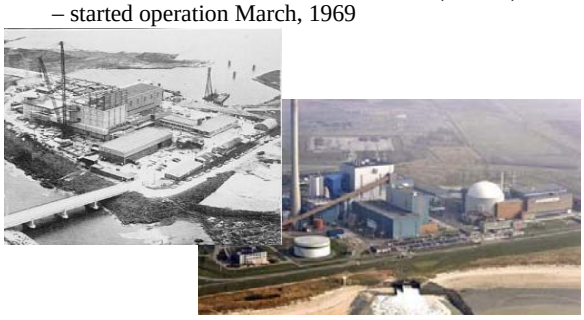
1957: first nuclear energy policy document:

- In 1962: first n-power reactor
- In 1975: 3000 MW, 34% of total capacity
- then all new capacity will be nuclear

1957: ITAL-reactor Wageningen

- Netherlands one of first European countries with research on nuclear energy
- 1950: plan to develop nuclear power in NL: first construction of research reactor
- First country outside US, UK & USSR technology to enrich uranium (1953)

1964 – start construction Dodewaard NPP (50MW) – started operation March, 1969



1969 – start construction Borssele NPP (450MW) – started operation October 1973

1950s: US-propaganda in Dutch

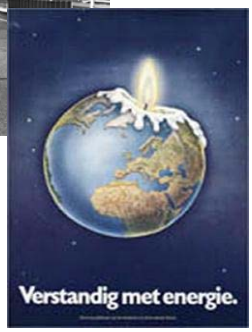
Start environmental awareness in public opinion

1970-71 first environmental organisations founded; Ver. Milieudefensie, Strohalm

1972: Club of Rome report *Limits to Growth*, predicted that economic growth could not continue indefinitely because of limited availability of natural resources, particularly oil.

Slogan *'Only one Earth'* was created

If we had to pollute our amniotic fluid for the economy, we would



1973: Oil crisis & call government to save energy

Arguments in public debate

1972 – 1973 Second group joined debate: members of PSP and PPR; parties that began to fight technological optimism and (economic) growth thinking

Arguments in public debate:

Kalkar, technology too complex, accidents, radiation, thermal pollution (Rhine), questioning economic growth. Symbol for a centralized, technocratic, undemocratic society.

Energy scenario 1972, Ministry of Economic Affairs

Expected electricity production by nuclear power:

- In 1990: 14.000 MW
- In 2000: 35.000 MW –total capacity: 70.000 MW
- From 2000 on: only NPPs for new capacity

Fact is:
- Since 1973 no new reactors built
- Nuclear capacity in 2000: 450 MW (1990: 500)
- Energy saving programs: total electricity production in 2000: 19.000 MW (incl. CHP)

Arguments in public debate

July 1, 1973: Dutch government raises electricity bill by 3% to finance construction of Kalkar-reactor

1973 – 1974 Third group: individuals organised in (local) committees against Kalkar-heffing (tax).

Public debate on: fastbreeder reactor, safety (Pu), centralised production, nuclear weapons and 'Revanchismus' and from that connection civil & military use.

Arguments in public debate

1970-1971 start of anti-nuclear opposition: scientists & part of environmental movement critical of social structures (social criticism)

Started to raise questions publicly on: Scale, safety, radiation, fear for livelihood, wholeness of creation, thermal pollution (Rhine)

From 1974 on , opposition and not government and/or industry was setting agenda for public debate

January 16, 1976: Government postpones decision to built nuclear power plants, because of opposition within. Optimism about possible role of nuclear power ends

But not end of debate

Arguments in public debate

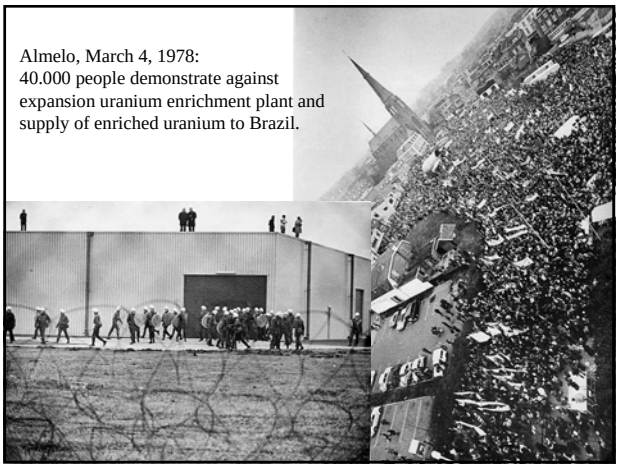
Nuclear power: from environmental to political issue

1976 - Fourth group dominant in public debate: radical left-wing intellectuals: independent student unions, anarchist groups, and ultra-left wing political groups:

Public debate on: role of the state, centralization of administration and means of production and increasing repression. Undemocratic ('Atomic State')
In f.i. West-Germany struggle polarized: became (militant) struggle against repressive state apparatus.

This group politicized argumentation, combined struggles and brought anti-parlementarism in movement

Almelo, March 4, 1978:
40.000 people demonstrate against expansion uranium enrichment plant and supply of enriched uranium to Brazil.



Stop atomic state / Nuclear power leads to police state. Posters late 1970's

Arguments in public debate

1979 - 1980 Sixth group: radicalised young people, usually organized in so-called affinity groups ('basisgroepen') became dominant in public debate.

Characterized by non-hierarchical structures and reliance on new forms of action. Active in other movements: mainly squatters' and feminist movement, but also anti-militarism.

Arguments: atomic state, proliferation, repression, (non-) violence

Arguments in public debate

1977 – 1978 Fifth group joined debate due to combining struggles (apartheid, labour, third world): members and supporters of social democratic party, the Labour Party (PvdA), churches and traditional trade unions. Also Third world & solidarity movement

Issues: Uranium mining (indigenous people), waste (salt domes), third world, proliferation (NPT).
Moderate wing of the movement -ambivalent.

Teargas…. At blockade at Dodewaard Sept. 1981. Despite large demonstration end of the popular mass antinuclear movement.

In less than 10 years (1974-1982) radical change in public opinion on nuclear power.

BMD (Broad Societal Discussion) 1983-84: No support for nuclear energy

Despite this conclusion, only months later, government decided to build new nuclear reactors. First one to be finished in 1990

Plans shelved after Chernobyl (April 1986)

Arguments in public debate

Agenda public debate set by government and nuclear lobby

- End of nineties, early 2000, climate change issue became important in public opinion: *"Nuclear power necessary to combat climate change" (but "nuclear power needs climate change more, than climate change needs nuclear power"*
- *2006:* decision to extend lifetime of Borssele NPP to 2033 and lobby for new nuclear gained power.
- 2009: Delta (and RWE) announced new construction at Borssele and started procedure to obtain licence

Policy change

Government scenario's:

1974: 3000 MW in 1985

1980: 5000 MW in 2000

1985: 6000 MW in 2000

1995: no new reactors

And then… March 2011, Fukushima

Fukushima showed that chance of severe accident (with off-site consequences) is much higher than calculated. Focus in public opinion back on safety argument.

January 2012: Delta and RWE delay decision to built new reactor 'for a few years' due to 'economical reasons'.

April 1986: Chernobyl

- Government cancelled plans for new reactors.

And nuclear power was announced dead:

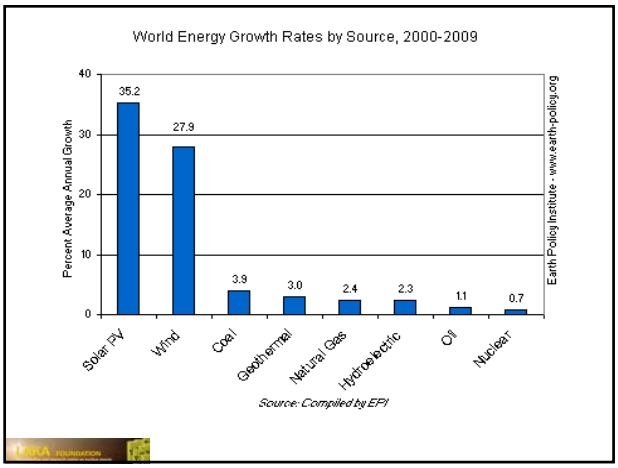
- – Enviromental organisations shut down their campaigns
- – nuclear power disappeared from public debate
- – Dodewaard closed in 1997 because '*lack of perspective for nuclear power*'
- – Borssele to close in 2003
- – government documents: '*the nuclear power era seems to have been ended in the Netherlands*'

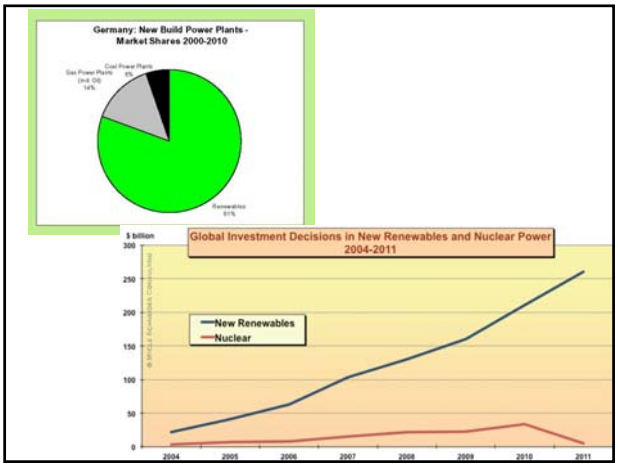
– General feeling:'*If we don't talk about nuclear power, it will disappear naturally*'

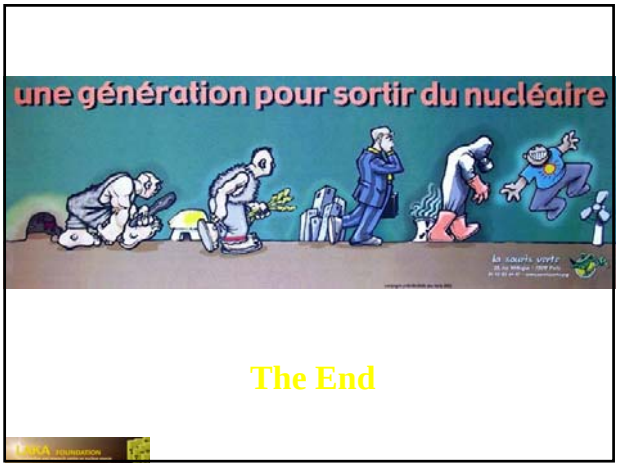
(opinion poll June 2014)

Q: Especially which energy sources do you think The Netherlands should use for electricity production

Solar	83%
Wind	78%
Hydropower	59%
Biomass	33%
Nuclear	11%
Natural Gas	9%
Hard coal	2%


World Energy Growth Rates by Source, 2000-2009
Percent Average Annual Growth
40
30
20
10
0
35.2
27.9
3.9
3.0
2.4
2.3
1.1
0.7
Solar PV
Wind
Coal
Geothermal
Natural Gas
Hydroelectric
Oil
Nuclear
Earth Policy Institute - www.earth-policy.org
Source: Compiled by EPI


Germany: New Build Power Plants - Market Shares 2000-2010
Global Investment Decisions in New Renewables and Nuclear Power 2004-2011
$ billion
New Renewables
Nuclear
2004
2005
2006
2007
2008
2009
2010
2011


une génération pour sortir du nucléaire

The End