

# ISOE INFORMATION SHEET

## EUROPEAN DOSIMETRIC RESULTS FOR 2008

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This ISOE Information Sheet presents the average collective doses per reactor (PWRs, VVERs, BWRs) for the period 2006 - 2008 in the European countries participating in ISOE.

In 2008 the average collective dose per reactor for PWRs and VVERs continued to decrease, reaching the lowest value since 3 years, at around 0.53 man·Sv per reactor. Most countries are showing a stable or decreasing trend over the last three years. The average collective dose per reactor for European BWRs has also decreased compared to 2006 and 2007, with a value at around 0.91 man·Sv (see Tables 1 and 2).

The evolution of the 3-year rolling average annual collective dose, which provides a better representation of the general trend in dose, shows a continuity of the decrease for PWRs and VVERs, going from 0.65 man·Sv per reactor for 2004-2006 to 0.56 man·Sv per reactor for 2006-2008 (see Table 3).

Regarding VVERs, the Czech Republic showed the lowest 3-year rolling average annual collective dose per reactor in 2006-2008 with 0.15 man·Sv per reactor, followed by the Slovak Republic (0.23 man·Sv per reactor), Hungary (0.38 man·Sv per reactor) and Finland (0.66 man·Sv per reactor) (see Figure 1).

For European PWRs, the data per country shows that with respect to the 3-year rolling average

annual collective dose for 2006-2008, three main groups can be distinguished (see Figure 2):

- United Kingdom:  
below 0.3 man·Sv per reactor,
- Belgium, The Netherlands, Spain and Switzerland:  
between 0.3 and 0.4 man·Sv per reactor,
- Sweden:  
around 0.5 man·Sv per reactor,
- France, Slovenia:  
around 0.65 man·Sv per reactor,
- Germany:  
greater than 0.8 man·Sv per reactor.

The 3-year rolling average annual collective doses per reactor for BWRs are quite similar in all European countries around 1 man·Sv per reactor, except for Spain recording the high dose with 1.69 man·Sv per reactor; the minimum being Finland with 0.72 man·Sv per reactor (see Figure 3).

Table 1. PWRs average collective dose per reactor by country from 2006 to 2008

Country	Average coll. dose per reactor (man·Sv)		
	2006	2007	2008
<b>PWR Group:</b>			
Belgium	0.39	0.29	0.39
France	0.69	0.63	0.66
Germany	0.84	1.04	0.62
Netherlands	0.62	0.23	0.28
Slovenia	0.86	0.89	0.15
Spain	0.38	0.50	0.29
Sweden	0.51	0.41	0.56
Switzerland	0.35	0.37	0.46
United Kingdom	0.52	0.05	0.26
<b>PWR Sub-Total</b>	<b>0.64</b>	<b>0.62</b>	<b>0.59</b>
Czech Republic	0.15	0.17	0.13
Finland	0.83	0.36	0.78
Hungary	0.35	0.45	0.33
Slovak Republic*	0.28	0.24	0.16
<b>VVER Sub-Total</b>	<b>0.31</b>	<b>0.28</b>	<b>0.26</b>
<b>All PWR Group</b>	<b>0.59</b>	<b>0.56</b>	<b>0.53</b>

\*includes JAVYS 1 reactor which is in preparation stage for decommissioning (shutdown since 1<sup>st</sup> January 2007).

Table 2. BWRs average collective dose per reactor by country from 2006 to 2008

Country	Average coll. dose per reactor (man·Sv)		
	2006	2007	2008
<b>BWR Group:</b>			
Finland	1.10	0.59	0.46
Germany	1.14	0.99	1.19
Spain	0.41	4.15	0.50
Sweden	1.09	1.10	0.85
Switzerland	0.97	1.10	1.16
<b>All BWR Group</b>	<b>1.02</b>	<b>1.33</b>	<b>0.91</b>

Table 3. PWRs 3-year rolling average collective dose per reactor by country

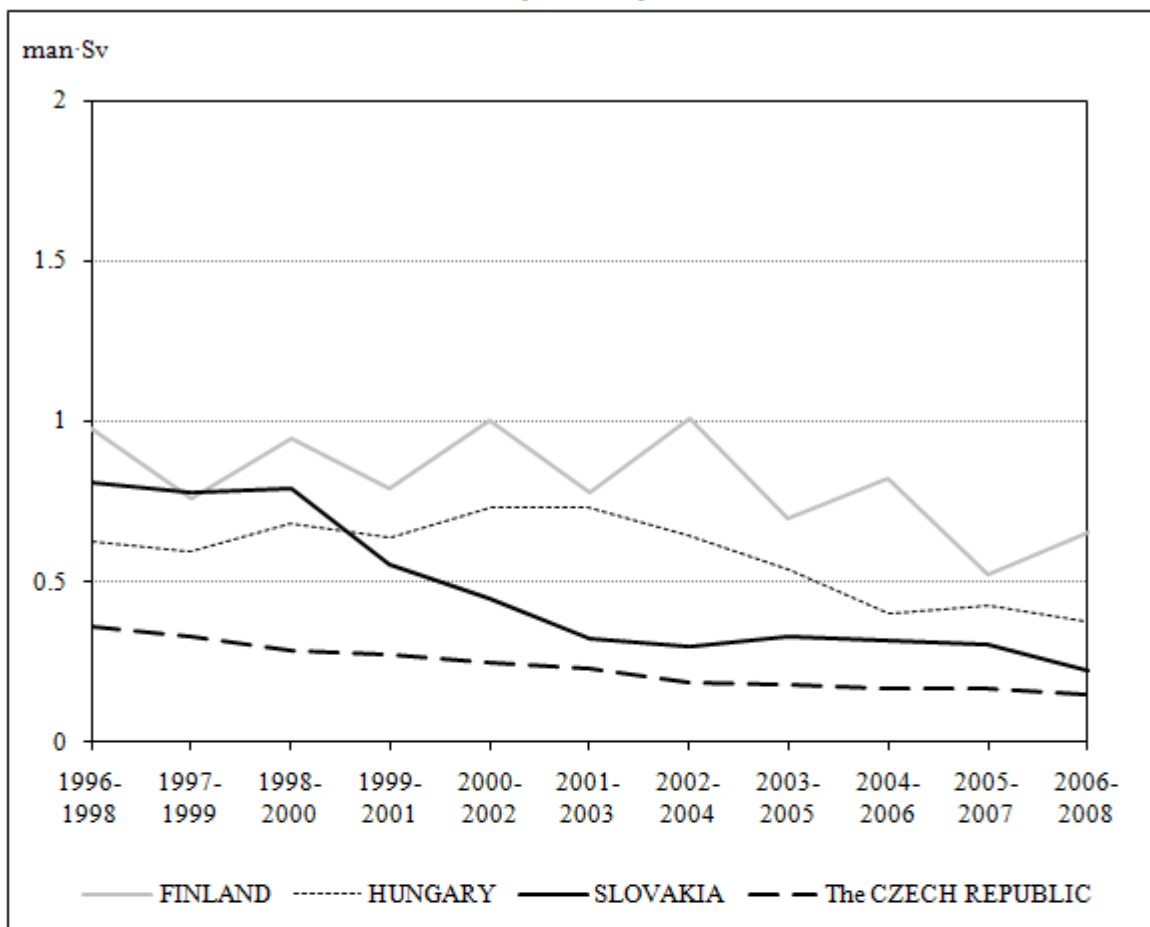
Country	Average coll. dose per reactor (man·Sv)		
	2004-06	2005-07	2006-08
<b>PWR Group:</b>			
Belgium	0.40	0.36	0.36
France	0.75	0.70	0.66
Germany	1.02	1.06	0.83
Netherlands	0.54	0.35	0.38
Slovenia	0.54	0.61	0.63
Spain	0.37	0.43	0.39
Sweden	0.57	0.52	0.49
Switzerland	0.50	0.46	0.40
United Kingdom	0.31	0.31	0.28
<b>PWR Sub-Total</b>	<b>0.71</b>	<b>0.67</b>	<b>0.62</b>
Czech Republic	0.17	0.17	0.15
Finland	0.82	0.53	0.66
Hungary	0.40	0.43	0.38
Slovak Republic*	0.32	0.30	0.23
<b>VVER Sub-Total</b>	<b>0.34</b>	<b>0.31</b>	<b>0.28</b>
<b>All PWR Group</b>	<b>0.65</b>	<b>0.61</b>	<b>0.56</b>

\*includes JAVYS 1 reactor which is in preparation stage for decommissioning (shutdown since 1<sup>st</sup> January 2007).

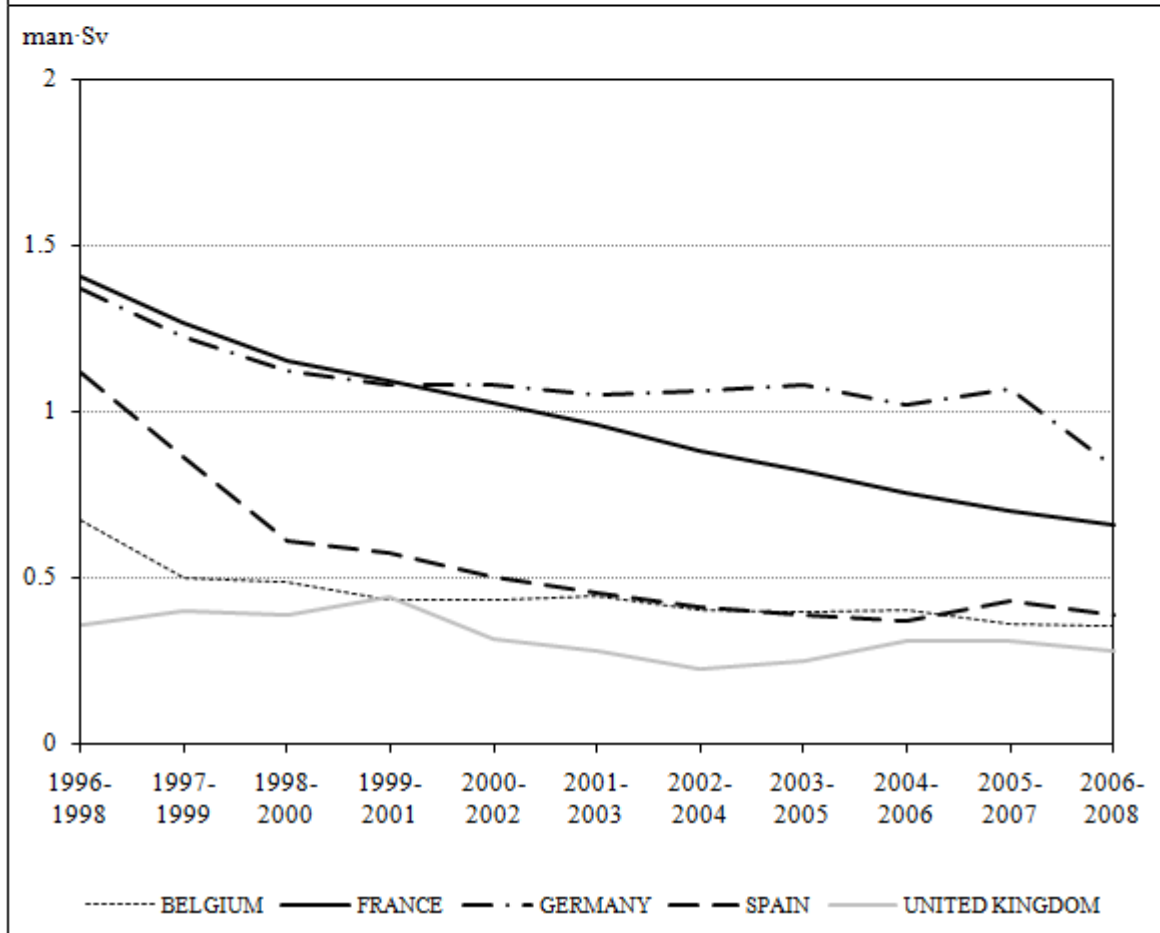
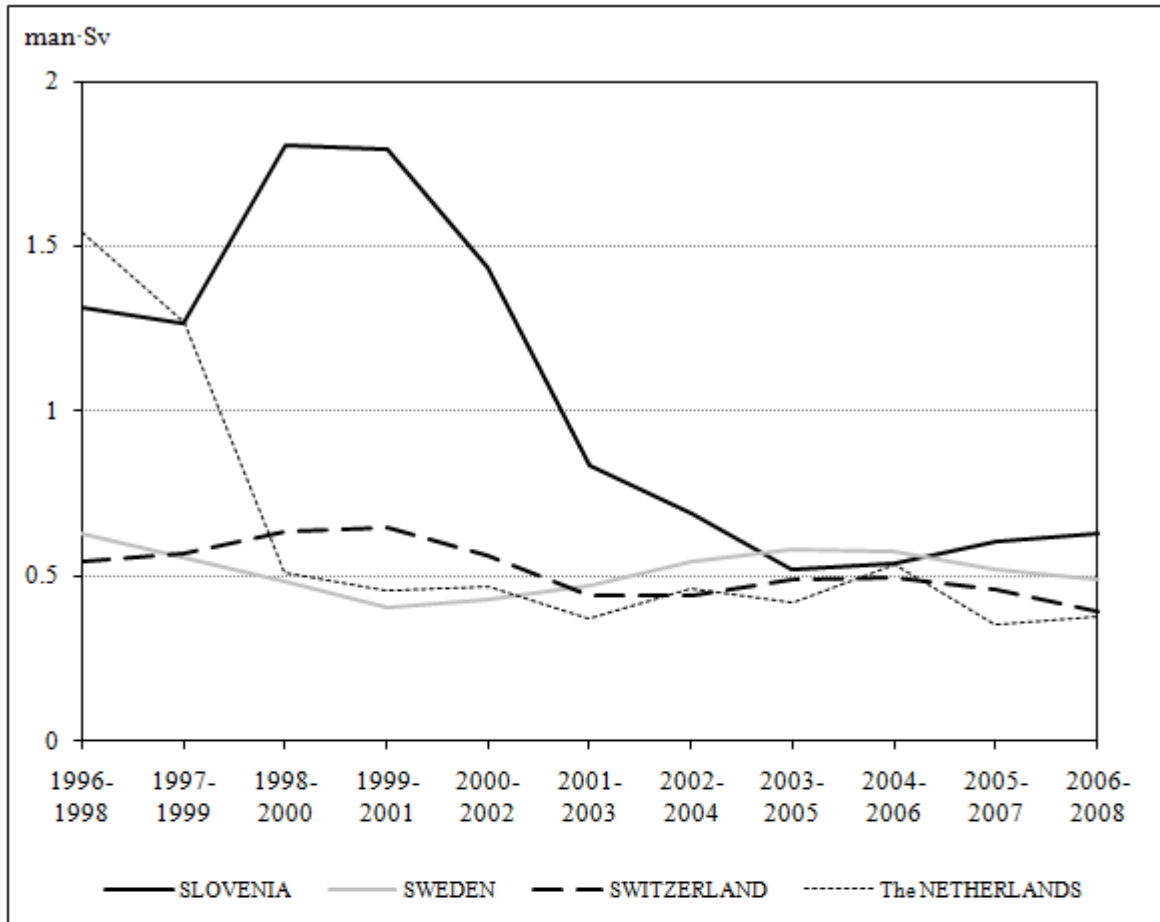
Table 4. BWRs 3-year rolling average collective dose per reactor by country

Country	Average coll. dose per reactor (man·Sv)		
	2004-06	2005-07	2006-08
<b>BWR Group:</b>			
Finland	0.99	0.94	0.72
Germany	1.07	1.05	1.11
Spain	1.06	2.29	1.69
Sweden	0.91	1.08	1.02
Switzerland	1.14	1.02	1.08
<b>All BWR Group</b>	<b>1.01</b>	<b>1.18</b>	<b>1.09</b>

**Figure 1. Evolution of the VVERs 3-Year Rolling Average Collective Dose per Reactor by Country**



**Figure 2. Evolution of the PWRs 3-Year Rolling Average Collective Dose per Reactor by Country**



**Figure 3. Evolution of the BWRs 3-Year Rolling Average Collective Dose per Reactor by Country**

