

Impact of the Tohoku Earthquake and the accident at the Fukushima Daiichi nuclear power plant to the energy policies in the EU and Japan

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- Reaction to the accident at the Fukushima Dai-ichi nuclear power plant
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The key issues of the EU:

- Future stable & secure **supply of energy**:
 - EU imports 82% of its oil & 57% of its gas
 - 40% increase of global energy demand within 20 years
- Rising energy prices & increasing dependance on energy imports is a **risk** for Europe´s **security & competitiveness**
- Need to speak with an united, **one voice** (*the EU "Energy 2020" Strategy – strengthening the external EU energy policy*)
- Need for long-term vision for energy policy (*Energy Roadmap 2050*)
- Single Energy Market

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Energy policy of the EU

- Energy policy of the EU:
 - the **Lisbon Treaty** sets out the **objectives** for the EU energy policy
 - The **Europe 2020** develops these further
 - Need for long-term vision in energy policy (*Energy Roadmap 2050*)
- The EU´s energy policy is a mix of **national & EU policy**→**split competence**
 - EU vs Member States energy interests

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The objectives of the EU energy policy

- Ensuring security of energy supply
- Enhancing competitiveness
- Ensuring sustainability

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Climate & energy package: 20-20-20 (EU 2020 Growth Strategy)

- greenhouse gas emissions 20% (or even 30%, if the conditions are right) lower than 1990
- 20% of energy from renewables
- 20% increase in energy efficiency

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EU Strategy “Energy 2020” : competitive, sustainable & secure energy

- Achieving an **energy efficient** Europe (20% energy savings by 2020)
- Building a truly pan-European **integrated energy market**
- Empowering consumers and achieving the **highest level of safety and security**
- Extending **Europe’s leadership in energy technology and innovation**
- Strengthening the **external dimension** of the EU energy market

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Reaction to the accident at the Fukushima Dai-ichi nuclear power plant:

- **Safety reviews** – need for greater **transparency** regarding **safety** of nuclear industry → the comprehensive & transparent **risk & safety** assessment (**stress tests**) of all EU existing & planned nuclear plants
 - Immediate **shutdown** of older reactors (Germany), **limited** or no further **lifetime extensions** for aging reactors (Germany, UK), **suspension** of new plants approval, **re-evaluation** of planned energy policy with greater focus on energy efficiency & switch to renewables)
- EC will review the existing legal & regulatory **framework** for the **safety of nuclear installations**. MSs should implement the **directive** on the **management** of spent fuel & radioactive waste
- The **highest standards** for nuclear energy in the EU & **promotion** of nuclear safety internationally

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Reaction to the accident at the Fukushima Dai-ichi nuclear power plant:

Public debates on:

- **Climate protection** (emission reduction) vs **European competitiveness** (economic growth, jobs)
- **Safety & transparency in nuclear energy**
 - Before Fukushima Governments - industry dialogue, after Fukushima public acceptance plays important role → involvement of **civil society organisations**
- **Future of the EU's energy policy, common energy market**
- **Energy mix** (energy mix is in competence of MSs & depends on national differences, technological development, investments capacity) & **energy price** (tax policy)
 - we need long-term vision for energy policy based on research & facts, not emotions based decisions:
"No to nuclear energy!" (GER, ITA, Switzerland),
Yes to renewables!
- Nuclear energy is a political issue

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Reaction to the accident at the Fukushima Dai-ichi nuclear power plant:

- Increased anti-nuclear sentiment (ITA, GER, ES, CH)
- Rising expectations for alternative & renewable energies
- **Energy efficiency** in homes, business & industry (*Energy Efficiency Plan 2011*)
- **Education & changing of consumers behaviour**
- **External dimension of the EU's energy policy** - *Security of energy supply and international cooperation* - *"The EU Energy Policy: Engaging with Partners Beyond Our Borders"*
- Need for **long-term vision and planning of energy policy** (*Energy Roadmap 2050*)

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Fukushima – Sequence of events

- 11 March: **Tsunami** and beginning of Fukushima accident
- 15 March: **Extraordinary meeting** EC/DG Energy (Commissioner level) with EU Regulators ENSREG (European Nuclear Safety Regulators Group) → **Conclusion: Needs for “stress tests”**
- 21 March: Extraordinary Energy Council with Energy Ministers
→ Member States and the Commission invite ENSREG and other relevant bodies **to define the scope and modalities of such “stress tests”**
- 24 May: ENSREG and commission reach agreement:
 - **Comprehensive and transparent risk and safety assessment of all EU nuclear plants** (stress tests will be conducted by **independent national authorities**)
 - **Stress tests covering safety** were launched on 1 June 2011. The assessment is based on an amended version of the WENRA (Western European Nuclear Regulators’ Association) proposal
 - **Safety and security** will be handled **separately**, with two different timeframes
 - A specific group on **“security tests”** was established by the EC and the EU MS by 15 July
 - Must not lead to a ranking of NPPs

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EU NPP stress tests: scope defined by ENSREG and EC

Focus placed on the following issues:

Initial events:

- Earthquake
- Flooding

Consequences of **loss of safety functions** from any initiating event conceivable at the plant site:

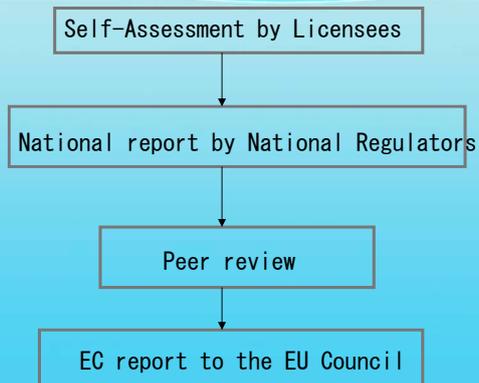
- Loss of electrical power, including station black out
- Loss of the ultimate heat sink
- Combination of both

Severe accident management issues:

- Means to protect from and to manage loss of core cooling function
- Means to protect from and to manage loss of cooling function in the fuel storage pool
- Means to protect from and to manage loss of containment integrity

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Stress tests - process



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Stress test implementation – Key milestones

- 1 June: national regulators initiate the tests process
- 15 August: operators carry out reassessments and submit progress reports to national regulators
- 15 September: regulators consolidate the data into national progress reports → first input to EC.
- 31 October: operators' final reports
- 15 Nov: EC viewpoint on the process - EC progress report to the European Council
- 9 Dec: European Council
- 12 December: large conference on nuclear safety organized by EESC
- End of 2011: final national reports - opening the door for the peer reviews
- 30 April 2012: completion of peer reviews
- June 2012: consolidated EC report to the European Council

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Important decisions we need to make:

- Can Europe **secure its energy needs without nuclear?**
- Gas/Coal/nuclear/oil/renewables? Which **renewables?** In all countries, there is a strong opposition to a certain type of renewable, as well as to the building of the necessary infrastructure
- **Energy mix** - it is up to member states to assess the energy mix decisions
- **Nuclear safety** doesn't stop at national borders, especially as many nuclear plants are close to borders with other MSs
- Nuclear issue is an **international issue & international standards of safety and transparency** need to be followed
- **Energy security:** there is enough energy in the world but it is in problematic places, nuclear energy is the only kind of energy that answers the problem of energy security, independence, and climate change
- Many issues must be confronted before getting nuclear energy (*politics, planning, price, people, permission, parts*)

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Nuclear today in the EU

- Over 140 reactors in the EU: **almost a third of EU electricity**, two thirds of low-carbon electricity
- Nuclear contributes to **security of supply, competitiveness and sustainability** (900 mio tons of CO2 avoided)
- **EU nuclear industry** in leading role
- Public opinion recognises opportunities and risks, and the vital need for more transparency

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Nuclear Power Reactors in Europe

Source: European Nuclear Society,

<http://www.euronuclear.org/info/encyclopedia/n/nuclear-power-plant-europe.htm>

Country	in operation		under construction	
	No	net capacity MWe	No	net capacity MWe
Belgium	7	5,927	-	-
Bulgaria	2	1,906	2	1,906
Czech Republic	6	3,678	-	-
Finland	4	2,716	1	1,600
France	58	63,130	1	1,600
Germany	9	12,068	-	-
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Hungary		1,889	-	-
Netherlands	1	487	-	-
Romania	2	1,300	-	-
Russian Federation	32	22,693	11	9,153
Slovakian Republic	4	1,816	2	782
Slovenia	1	688	-	-
Spain	8	7,567	-	-
Sweden	10	9,298	-	-
Switzerland	5	3,263	-	-
Ukraine	15	13,107	2	1,900
United Kingdom	19	10,137	-	-
total	187	161,665	19	16,941



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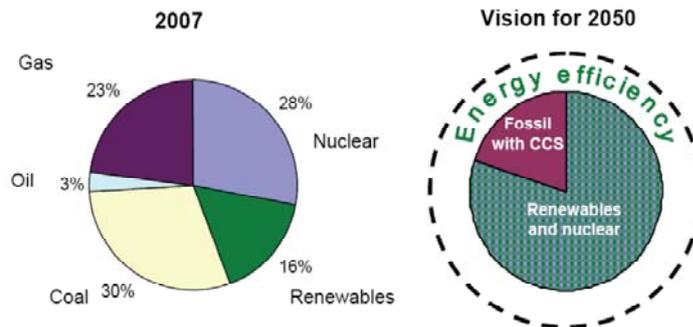
Nuclear Power Reactors Regions in operation (*under construction*)

World	432	(65)	• Slow decline of nuclear energy started before Fukushima already (since Chernobyl only 2 new reactors established in the EU)!
EU	135	(6)	(177 NPP 1989→135 in 2011)
USA	104	(1)	• Average age of the world's operating NPPs - 26 years
Japan	50	(2)	
Russia	32	(11)	
India	20	(5)	• Fukushima+economic crisis +tightening competition→ debate on energy mix, energy prices
Canada	18	(0)	
China	14	(27)	

Source: European Nuclear Society: <http://www.euronuclear.org/info/encyclopedia/n/nuclear-power-plant-world-wide.htm>

A vision for the future

Sources of electricity production in the EU today and tomorrow



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Arguments against nuclear:

- Nuclear energy carries **safety, financial, political & security risks** which are not present, to the same degree, with other forms of alternative power
- No progress on long term **waste solution**,
- **Costs** are **higher** than predicted, gets more expensive as time goes on due to constant updating of safety measures
- Plenty of alternatives, i.e. renewable energy

BUT a large number of EU “energy experts” still think that nuclear energy should continue playing a role until a significant replacement of fossil fuel is realised: the main question is how?

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Public perception about nuclear in the EU

- Government and public opinions across the EU are very diverse
 - Fukushima has led to more rejection/scepticism at both levels: **fear of nuclear is spreading across Europe**
 - Post-Fukushima: Germany, Italy (referendum), and Switzerland to **phase out nuclear**
 - Austria proposes to ban nuclear energy imports
 - Lack of reliable data about **the « real » costs of nuclear**
 - Implications of Fukushima still under assessment with much yet to be reported
 - We can also see an **opposite trends**: for instance Finland has 4 nuclear reactors, 5th under construction & 2 more are planned by 2014. Nuclear electricity generation - 30% in 2011→50% by 2050
- UK, Czech Republic etc, plan to continue with their nuclear power plants.

Phase-out of Germany's nuclear plants

- Before Fukushima: NPP supply 25% of German electricity
- Just after Fukushima: 3-month moratorium and the **8 oldest nuclear plants are put offline**
- Decision to **phase out ALL** nuclear plants (17 in total) by **2022** at the latest, opening **the way for a real industrial energy revolution**→greater focus on **energy efficiency measures** & switch to **renewables**
- Objective: **renewable sources** to provide **35% of electricity** by 2020, up from about 13% today (and reach 80% by 2050)
- Germany will become a **net importer of electricity** (it was an exporter before Fukushima) during the transition period
- **Electricity prices** hiked in the surrounding countries (Belgium, The Netherlands in particular) by **around 10%** after Germany's decision
- **Higher risk of supply shortcuts** (e.g. France often imports electricity from Germany in summer period because of low river levels and lack of cooling water for NPP)

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Economic cost of Germany's nuclear decision

- Impacts companies throughout Europe
- EC should carry out an **ASSESSMENT** of the short-&medium terms impacts of this decision on **energy costs, energy security & CO2 prices in Europe**
- **Higher energy bills for households, SMEs & large energy-consuming companies in Germany** in the coming years
- **Energy security** - switching off a number of NPP challenge for the balance of electricity grid - large energy consumers might be forced to shut down their production → **massive economic cost** (loss of jobs)
- **CO2 prices**- since 2005, single European price of CO2 under the EU Emission Trading Scheme (ETS) - in short term, German nuclear power plants will be compensated by **more emission-intensive coal & gas-fired power plants, the price of emission allowances will increase** for approx. 11 000 companies in Europe. Plus indirect effect of CO2 to the electricity prices
- Energy prices on average **higher** in Europe than in many our trading partner countries→**impact on European competitiveness**
- Companies want to operate in **predictable** EU policy framework - need for addressing the issue in *EU Energy Roadmap 2050*

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How much does it really cost?

For instance:

According to a new study a move from 75% to 50% of the share of nuclear in the French energy mix would cost an extra 60 billion EUR and increase the energy bill by 50% in the next 20 years.

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Energy efficiency: best practice



<http://www.business europe.eu/Content/Default.asp?PageID=736>

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What is important for businesses?

Businesses support

- the EUs climate & energy targets for 2020 & the idea of 2050 roadmap (strategies, investments)
- International offsets for achieving reduction levels
- EU policies to reduce greenhouse gas emissions such as the Emission Trading Scheme, renewable energy policy, Implementation of the Kyoto Protocol and post-2012 international action

- European companies want to operate in a **predictable EU policy framework**, which integrates **climate protection, energy security as well as competitiveness concerns**.
- Energy efficiency & energy losses: **60% conversions & 10% distribution losses in energy sector**
- long-term vision for energy policy, because decarbonisation presumes huge investments (Energy Road Map 2050)
- energy is very important cost factor for industry & the energy price is already higher in the EU comparing to many other trading partner countries

Estonia-Japan cooperation: smart solutions for electricity sector

Estonia-Mitsubishi Corporation cooperation:

- Signing the memorandum of understanding (21.10.2011)
 - Energy efficient buildings
 - Diversified generation of renewable energy
 - Environmentally friendly transport
 - Supply of energy to smaller islands



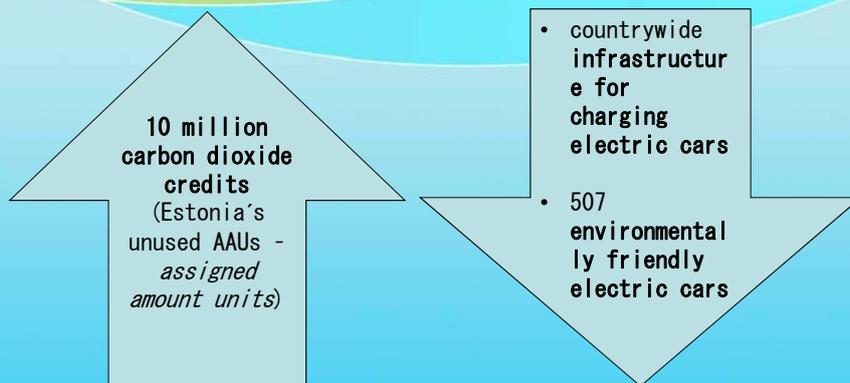
Mr Andrus Ansip, Prime Minister of Estonia and Mr Ogata, Vice-President of Mitsubishi Corporation
21.11.2011



Estonia signs Memorandum of Understanding with Mitsubishi Corporation: Mr Ogata, VP Mitsubishi Corporation & Mr Kristen Michal, Minister of Justice of Estonia

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Estonia-Mitsubishi Corporation electric car project:



10% of Estonia's transport sector rely on renewable energy by 2020

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Conclusions

- Reducing our use of fossil fuels at the international level is an immense political, financial and technological challenge
- Fukushima has significantly changed public perceptions regarding nuclear energy in the EU
- Re-evaluation of the safety of nuclear power generation technology
- Re-assessment of energy policy and energy mix, “more Europe” is needed in energy policy, international cooperation in energy field & nuclear safety
- Fukushima put in the agenda focus on renewables & energy efficiency

Conclusions: recommendations

- Objective & independent **evaluation** of Fukushima accident
- Need for **assessment of Crisis Communication, information dissemination & CSOs participation in disaster relief** (based on Fukushima case)
- **Skills shortage** – lack of nuclear energy experts (2025 many of them will retire) → more EU-Japan relevant students & reserach exchange

Conclusions: recommendations

- EU & Japan should **continue dialogue on energy policy**:
 - Exchange **experience & best practices on policy-setting for secure, safe & sustainable energy**
 - Exchanging views on **long-term planning & energy mix**
 - Strengthen EU-Japan cooperation on **research & innovation on energy technologies, defining international standards for safety of nuclear power plants, smart grids**
 - EU-Japan cooperation on **renewables**: (supportive legislative framework, funding for the technological development of renewable energies)
 - Sharing **best practices of nuclear safety with new emerging nuclear countries**

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Conclusions

- **Greater transparency in nuclear energy**

Deciding that nuclear energy must continue (or not) playing a role in the next 50 years cannot be done by the politicians and industrialists alone – **civil society must have a say**

 - The EESC
 - chairs a Working Group on Transparency in the **nuclear energy**: to support the **fair access to information and people's engagement into nuclear energy debates**
 - conference on nuclear safety: “Nuclear safety: A Much Needed Public Debate” , 12.12.2011 in Brussels
- **Explore options for closer EU-Japan civil society dialogue** (*Crisis communication & information dissemination, disaster preparedness, prevention & disaster relief field, psychological support for victims, best practices in energy saving field etc*)

THANK YOU FOR YOUR ATTENTION!

DOOMO ARIGATO GOZAIMASTA!

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