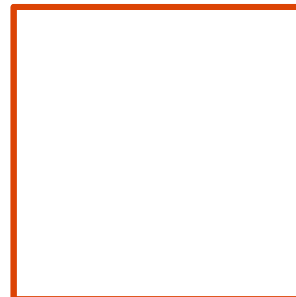


# Presentation on the status of completion of MO34 for media

October 2014



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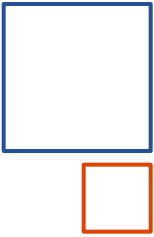


# Slovenské elektrárne: our power plants



Slovenské elektrárne is an Enel Group Company

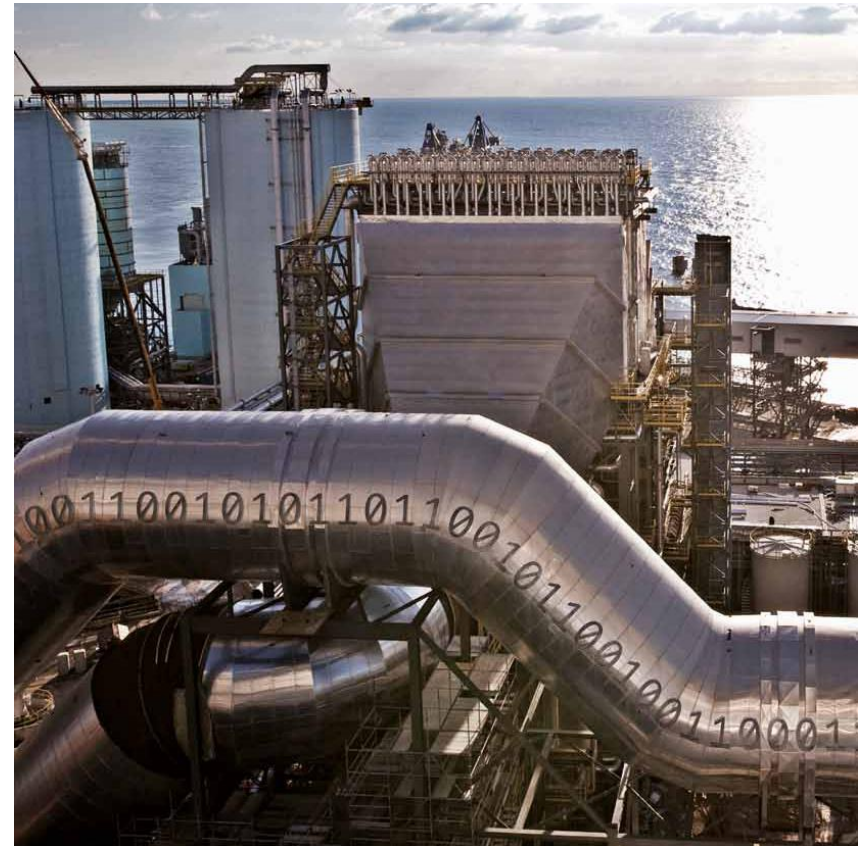
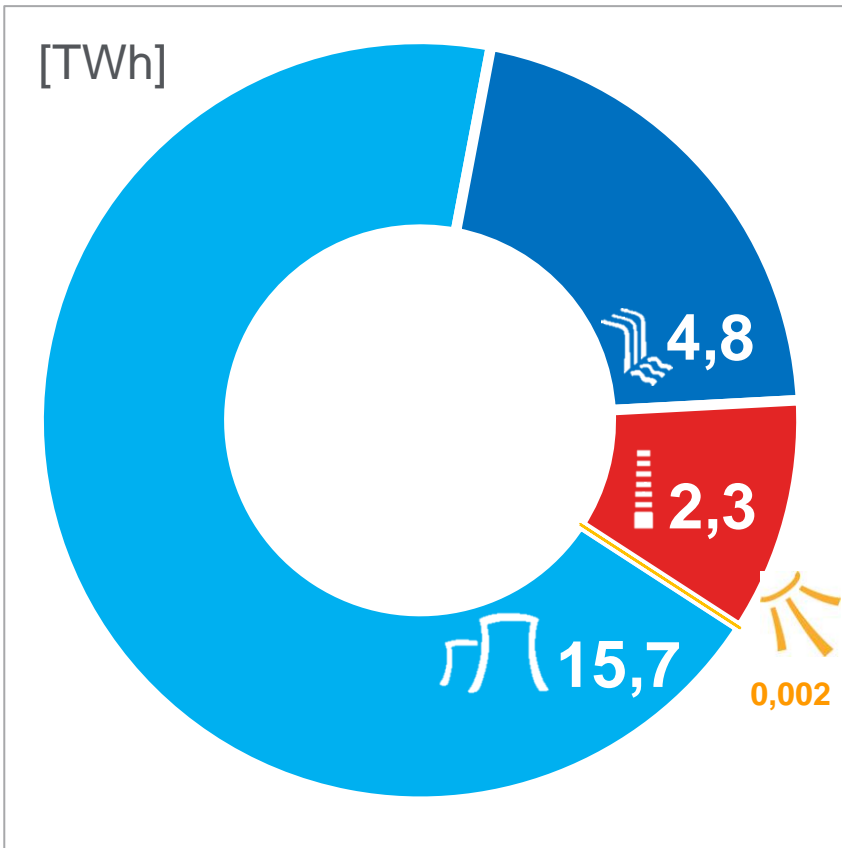


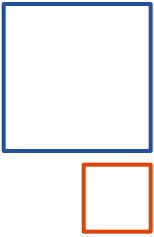


# Our production



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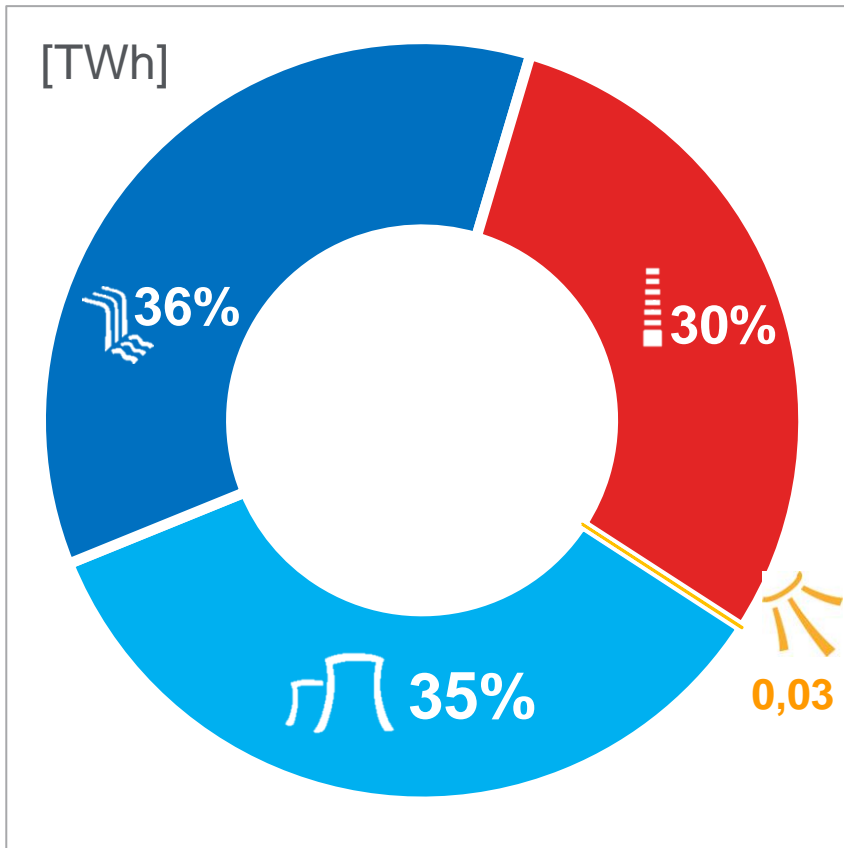




# Our installed capacity



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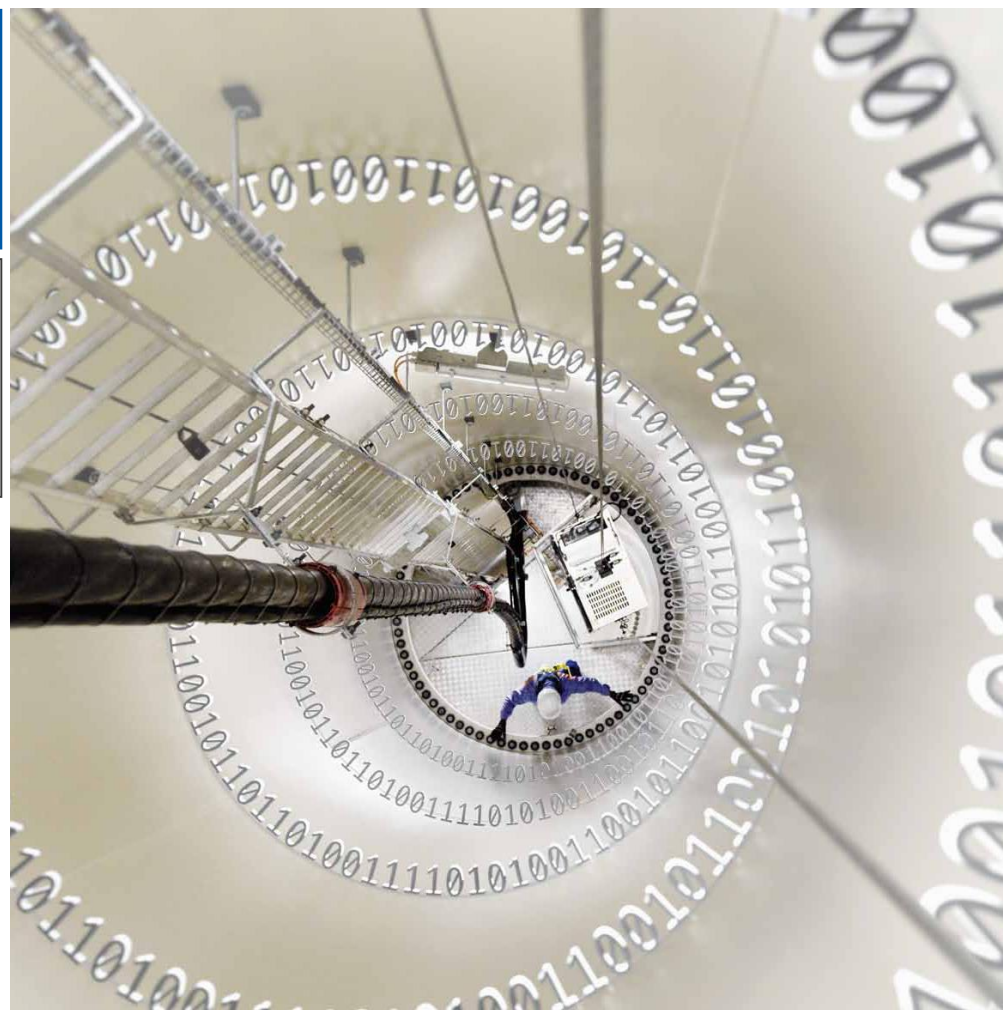


# SE in figures (2013)



Slovenské elektrárne is an Enel Group Company

Operations	Finances	Sales
<p><i>Installed capacity<sup>1</sup></i></p> <p><b>5,739</b> MW</p>	<p><i>Investments</i></p> <p><b>645</b> million euros</p>	<p><i>Sales to final customers</i></p> <p><b>5.2</b> TWh</p>
<p><i>Electricity production</i></p> <p><b>22,843</b> GWh</p>	<p><i>EBITDA</i></p> <p><b>710</b> million euros</p>	
<p><i>Electricity supply</i></p> <p><b>20,906</b> GWh</p>	<p><i>Net income</i></p> <p><b>356</b> million euros</p>	



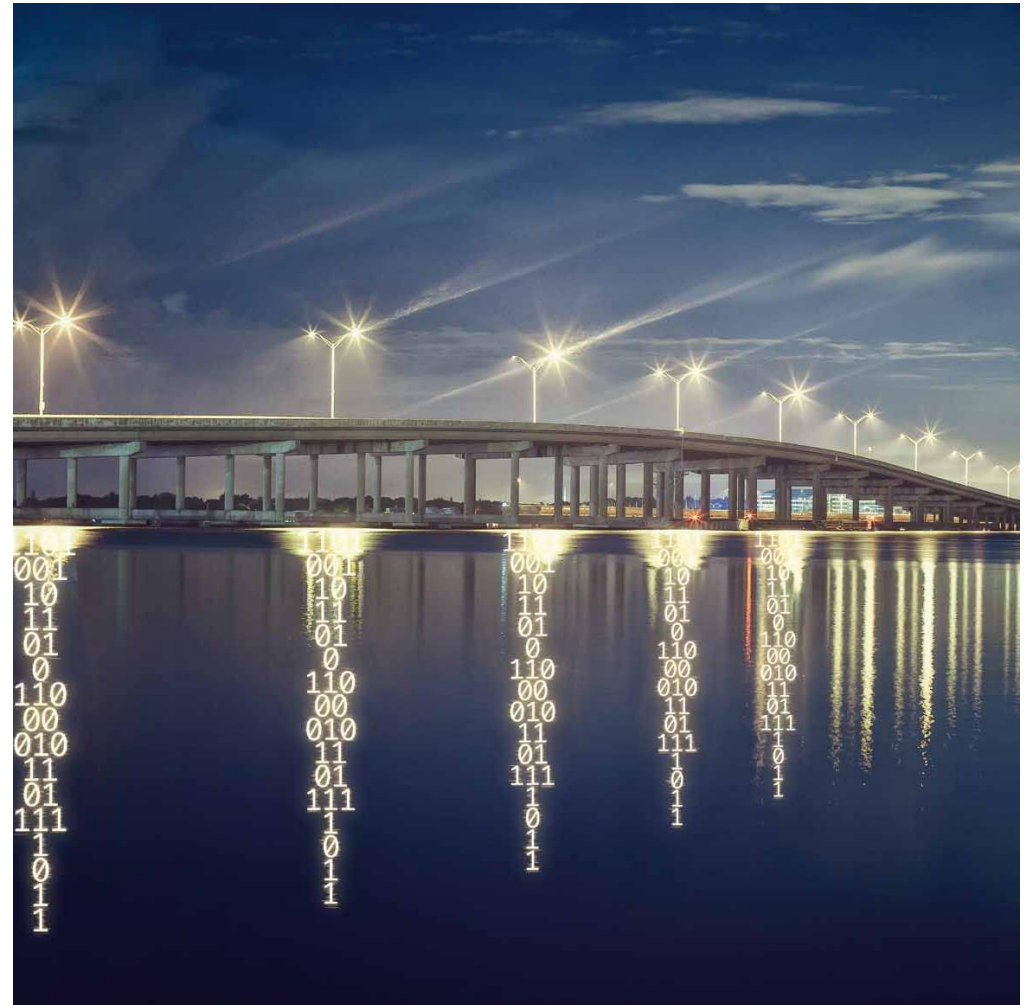


# SE in figures



Slovenské elektrárne is an Enel Group Company

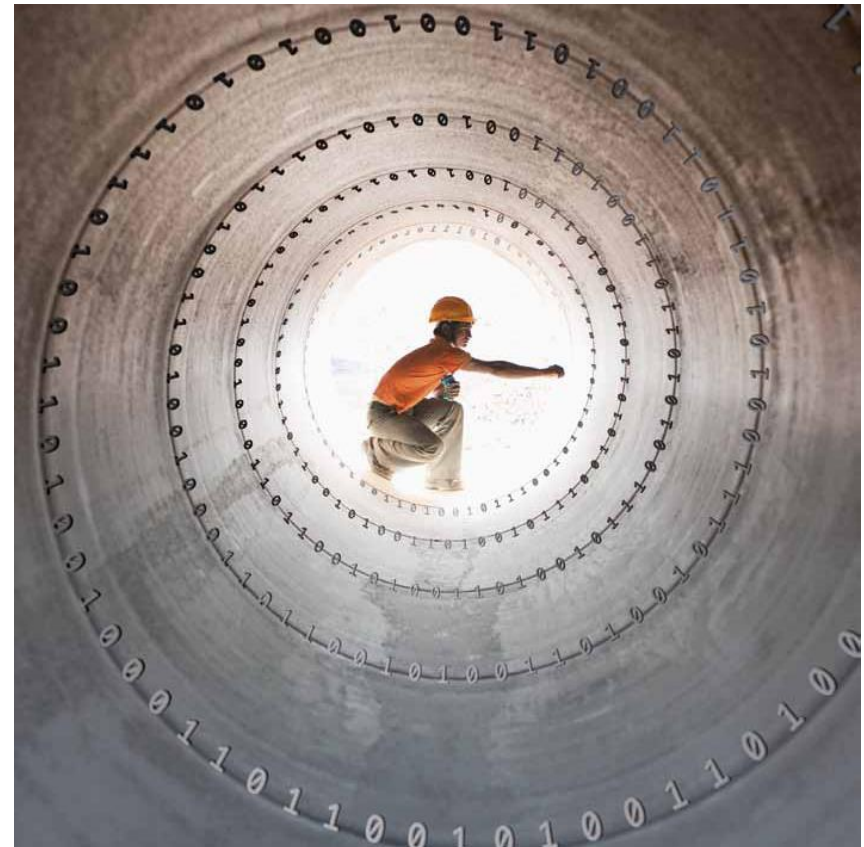
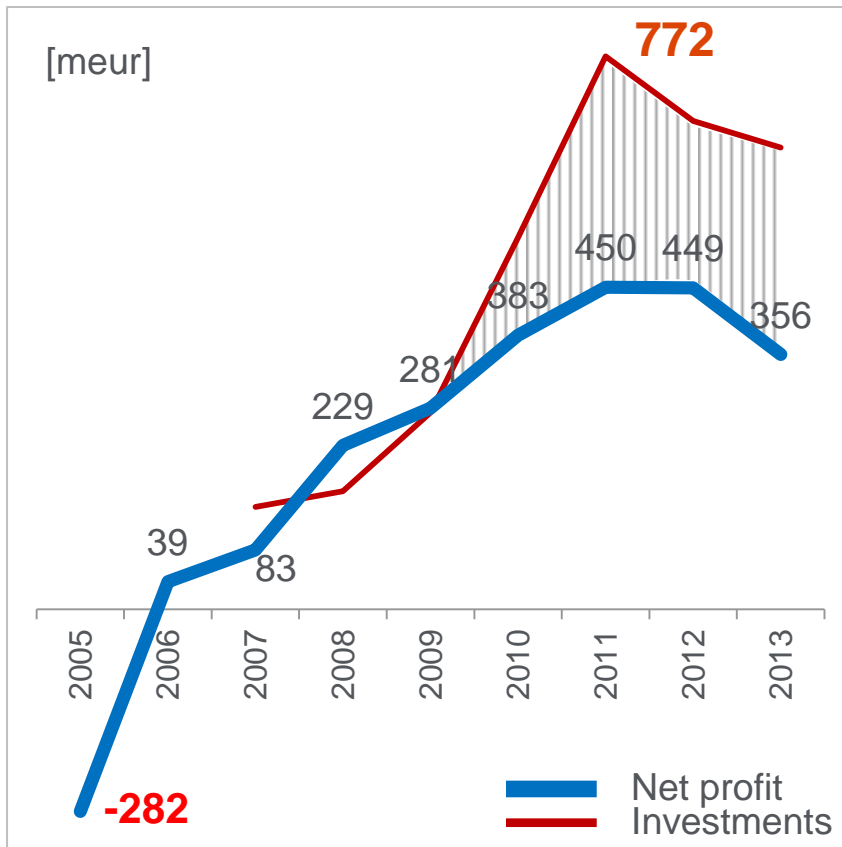
Investment Projects	Environment	Safety & Reliability
<p>Man-hours on MO34<sup>2</sup> project</p> <p><b>7.4</b> million hours</p>	<p>Electricity supply without CO<sub>2</sub> emissions<sup>2</sup></p> <p><b>90.6</b> %</p>	<p>Coef. UCF<sup>3</sup></p> <p><b>93.95</b> %</p>
<p>Peak at MO34 construction site</p> <p><b>4,000</b> workers</p>	<p>Saved CO<sub>2</sub> emissions thanks to biomass co-firing</p> <p><b>71,000</b> tons</p>	<p>Frequency rate<sup>4</sup></p> <p><b>0.39</b> million euros</p>
<p>Investments in R&amp;D</p> <p><b>2.5</b> million euros</p>		<p>Ranking of 52 VVER 440 and 1000 reactors operated worldwide</p> <p><b>Top5</b> ranking by INPO<sup>5</sup></p>

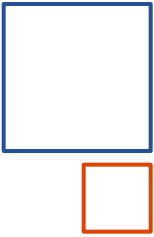


# Financial performance and investments



Slovenské elektrárne is an Enel Group Company

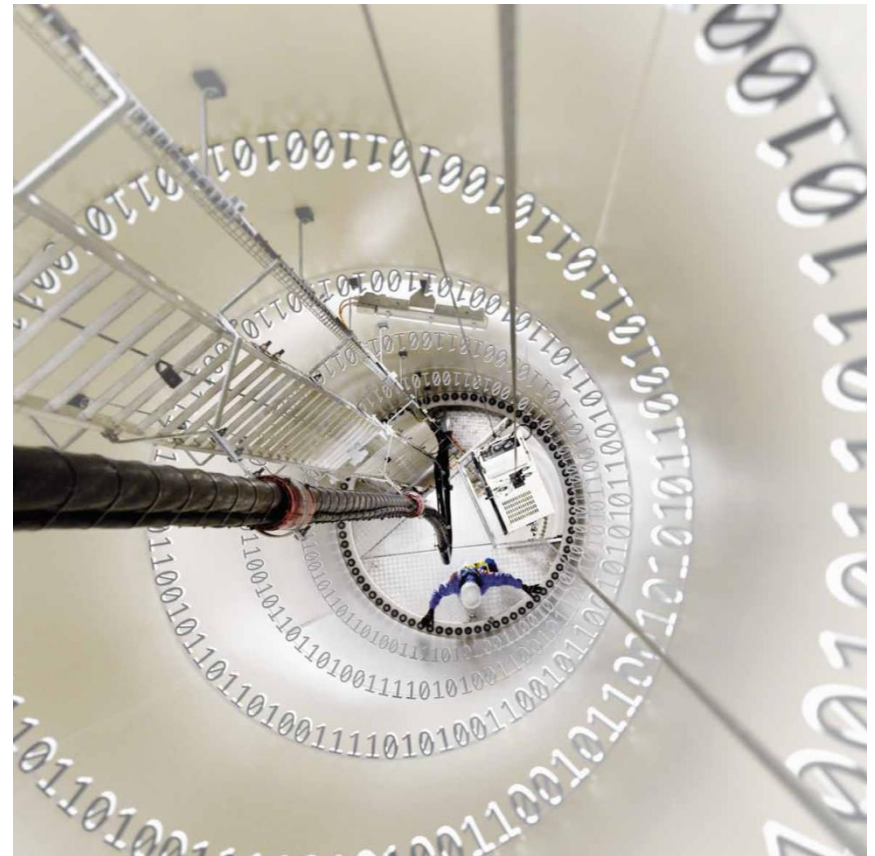
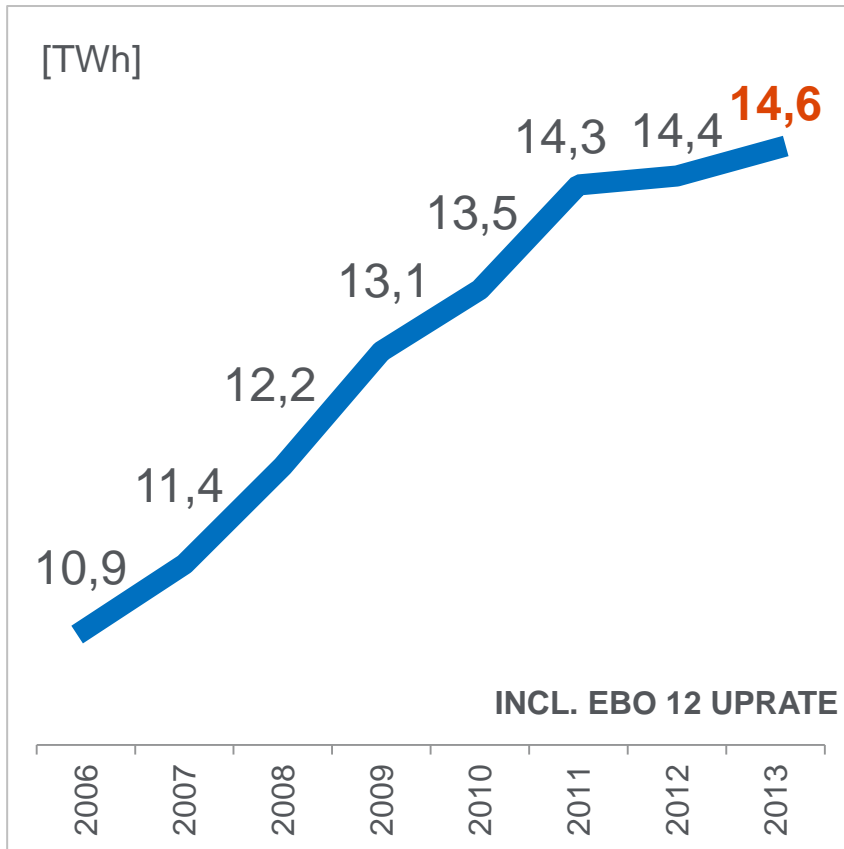




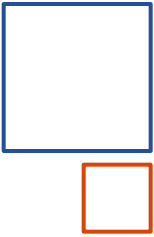
# Nuclear production



Slovenské elektrárne is an Enel Group Company



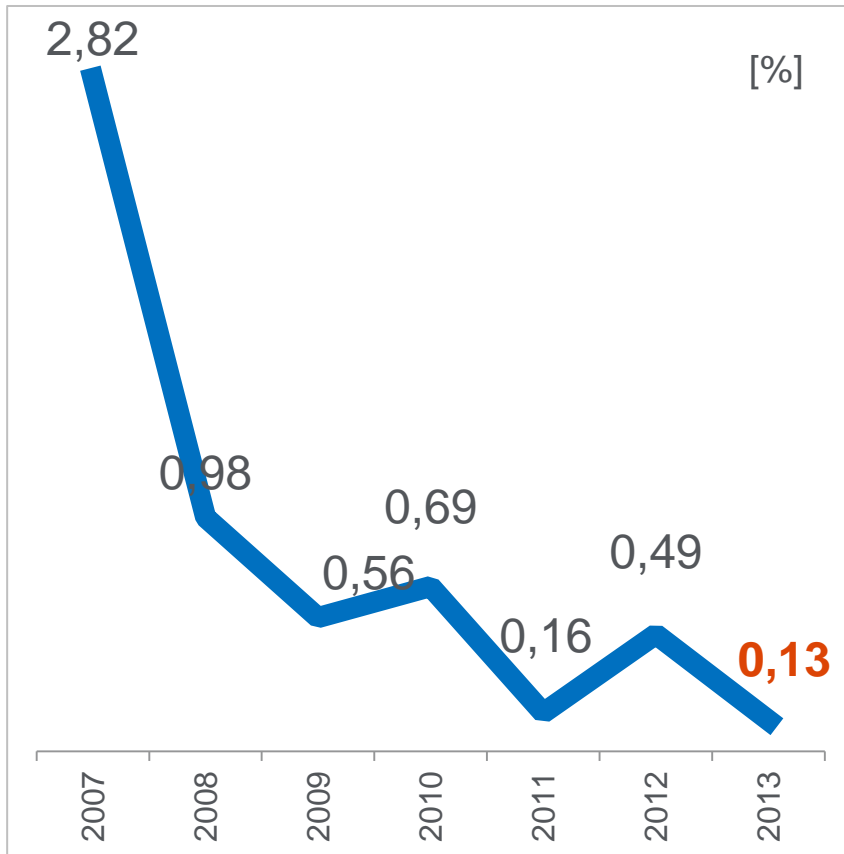




# Unplanned unavailability UCLF [%]



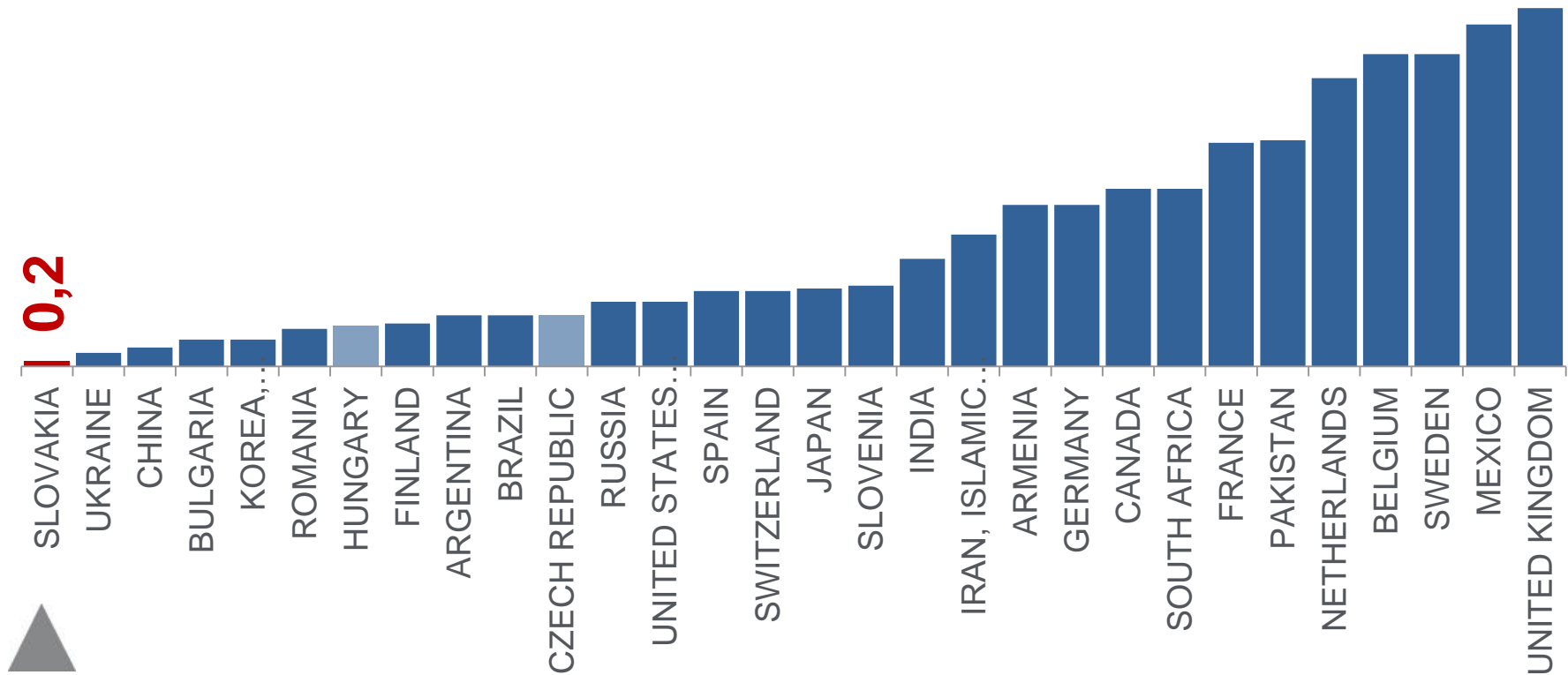
Slovenské elektrárne is an Enel Group Company

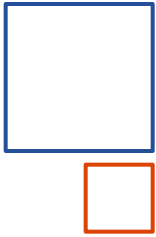


# Unplanned Capability Loss Factor [%] (2011-2013)



Slovenské elektrárne is an Enel Group Company



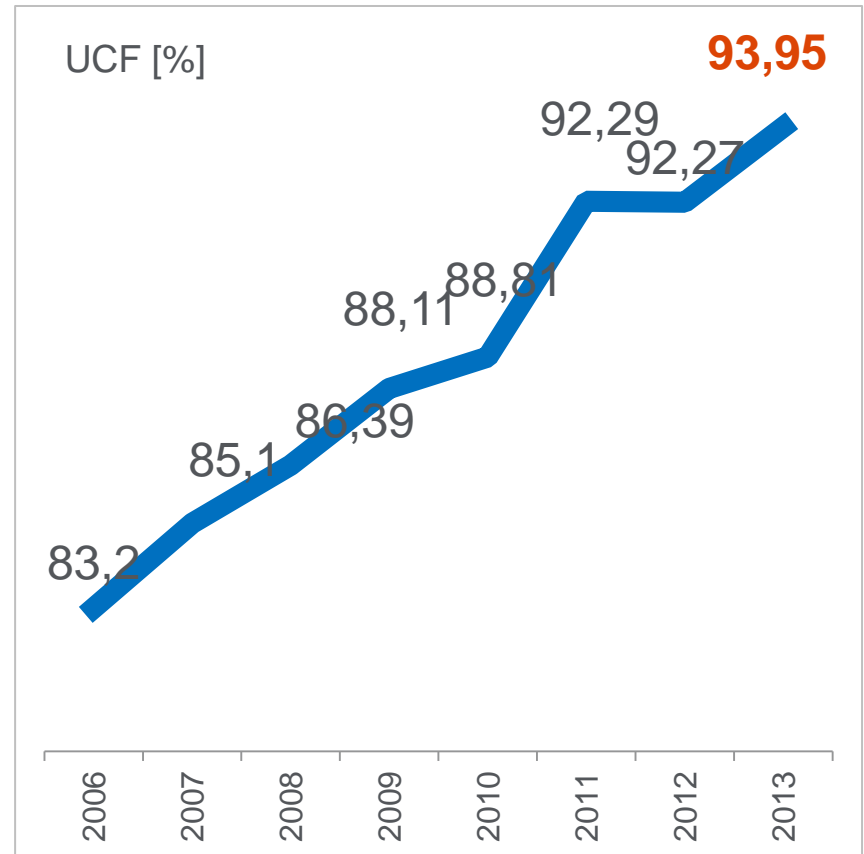
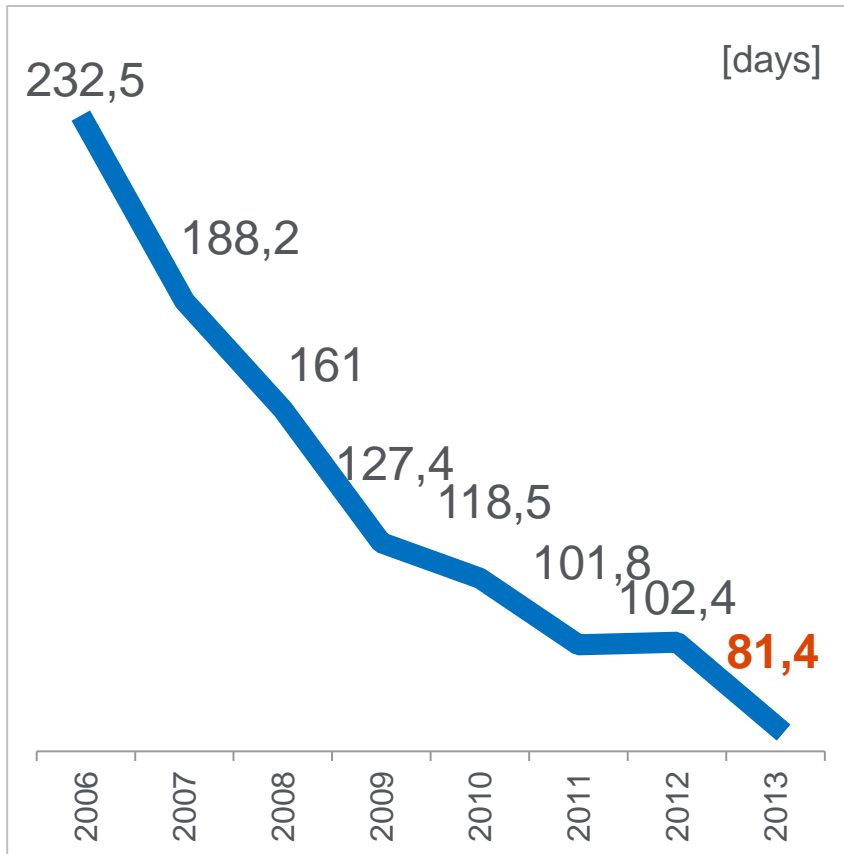


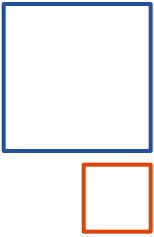
# Outages

# Availability



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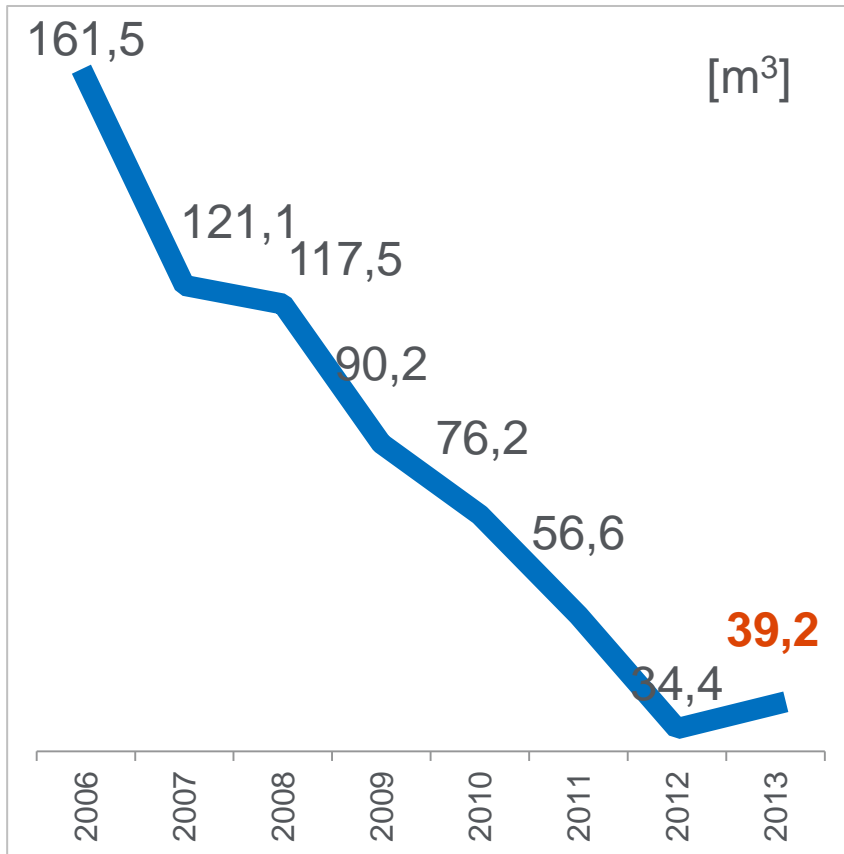




# Liquid radioactive waste

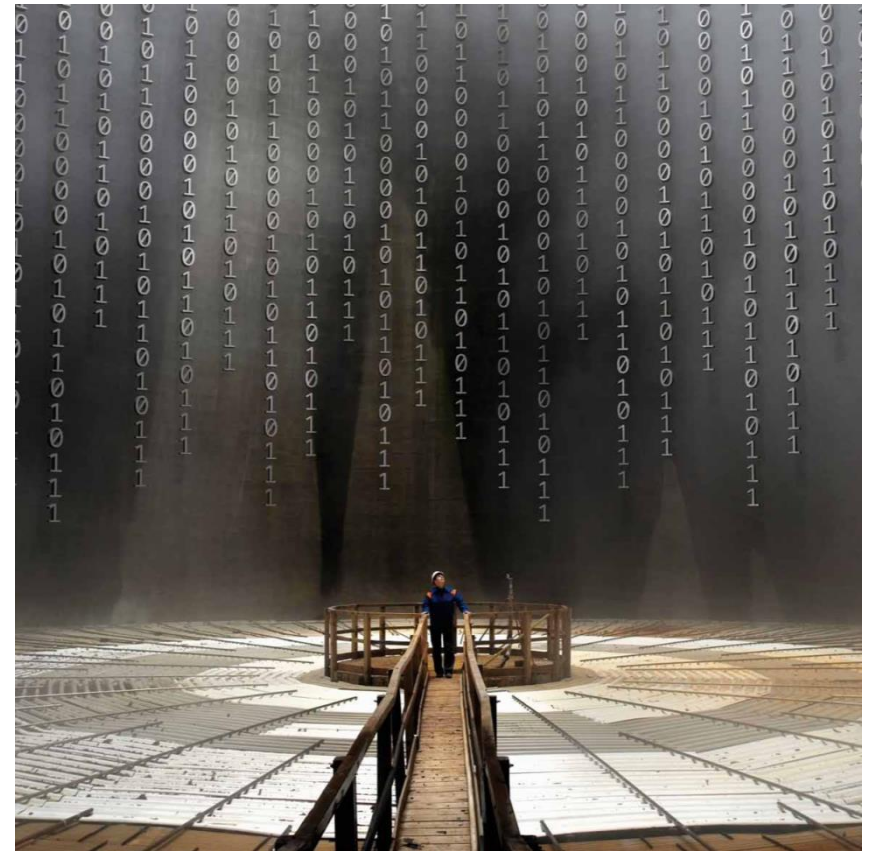
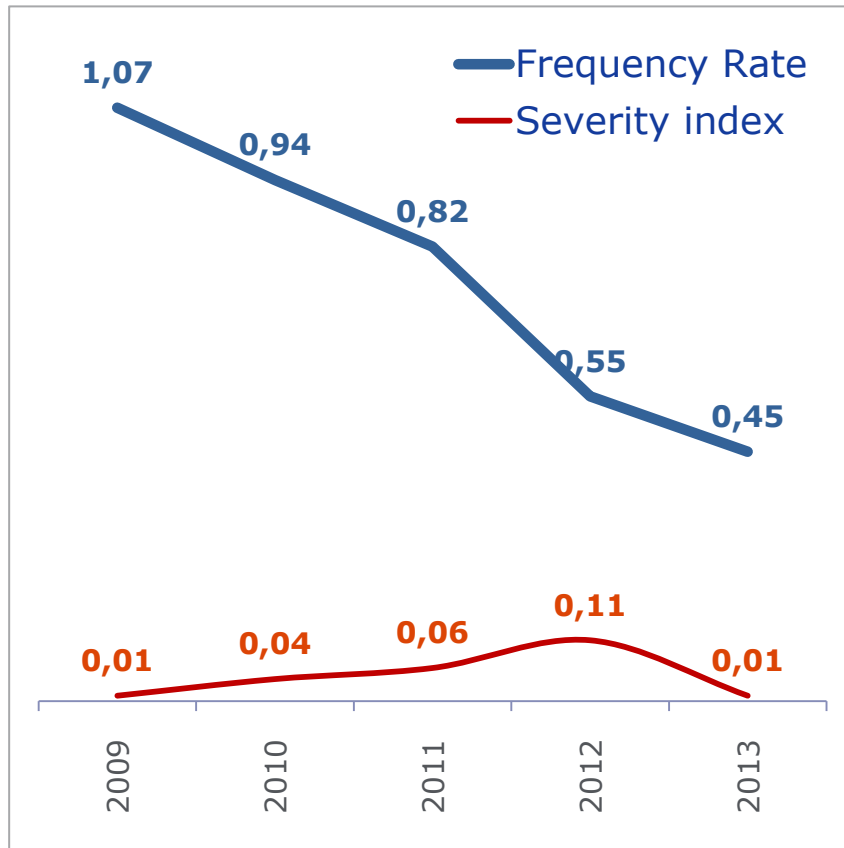


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# Safety

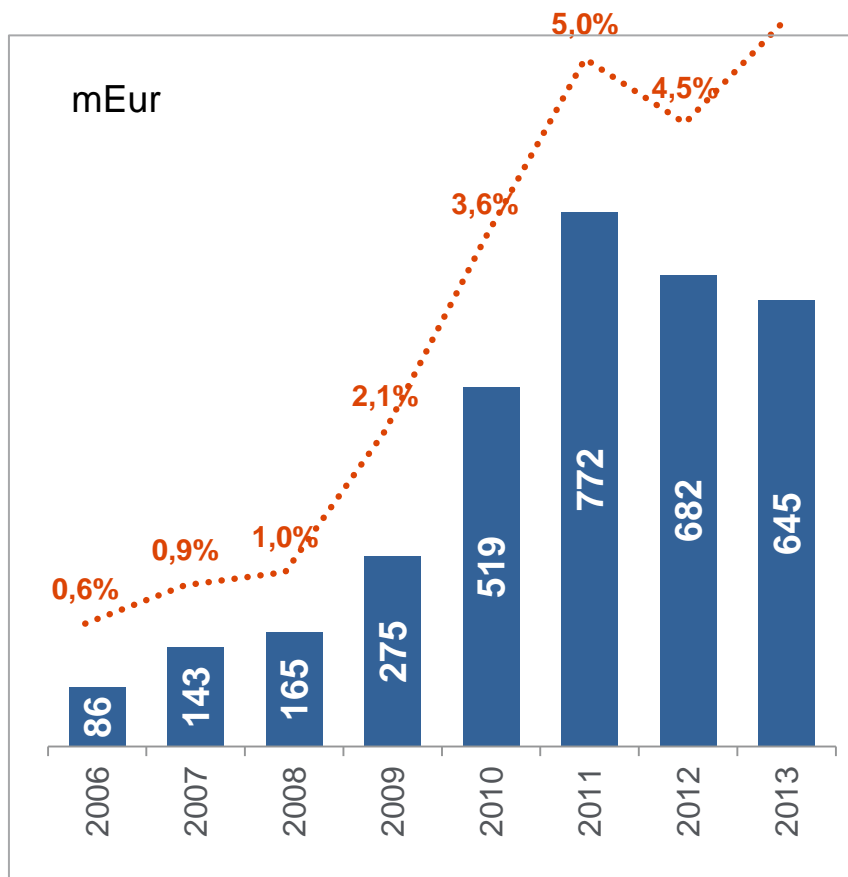


# Share of SE's investments on GDP

## Investment of 3,29 billion from 2006 to 2013



Slovenské elektrárne is an Enel Group Company





# Mochovce 3&4 Project Overview



Slovenské elektrárne is an Enel Group Company

**2 x 471MW**  
VVER 440/V-213

**GEN-III**  
reactors

**Evolutionary**  
**Design**



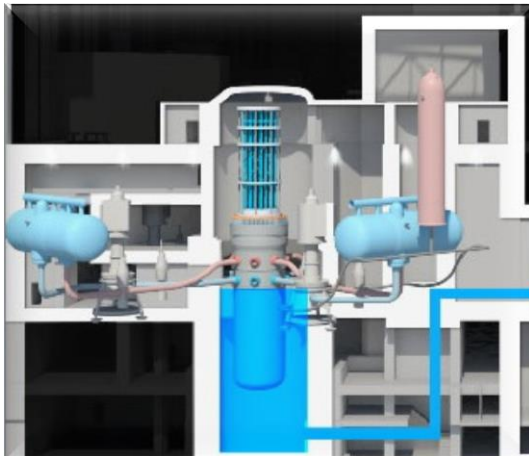
**150**  
contractors on  
site

**≈ 25 mil.**  
workhours

**≈ 5200**  
workers (peak)

## Severe Accidents Management

[Survivability to Extreme Conditions]



## Plant and site degraded Accidental Conditions

[post-Fukushima EU stress tests]



## State-of-the-art digital and programmable Main I&C System

[Protection, Control and Supervision System]





# First-of-a-Kind Nuclear Power Plant



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## 2008 Basic Design

- Seismic design basis: 0,15 g
- Additional accident preventive measures
- Severe accident mitigation measures
- Light aircraft crash protection
- Partial secondary containment function
- State of the art Supervision-control and Protection system
- Design for Power up-rate (up to 535 MW gross; 111.7% of CTP) with minimal HW change
- RW minimization

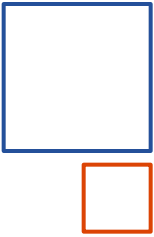
## 2009-10 Improve ments

- Reduction of core damage frequency in shut-down states
- HMI Design
- I&C Re-classification
- Technical characteristics of Electrical equipments
- Fire-protection system
- EU Stress Tests Measures

Significant impact on **design-procurement-construction** activities

Significant incidence of **re-works** (e.g.: DCS)

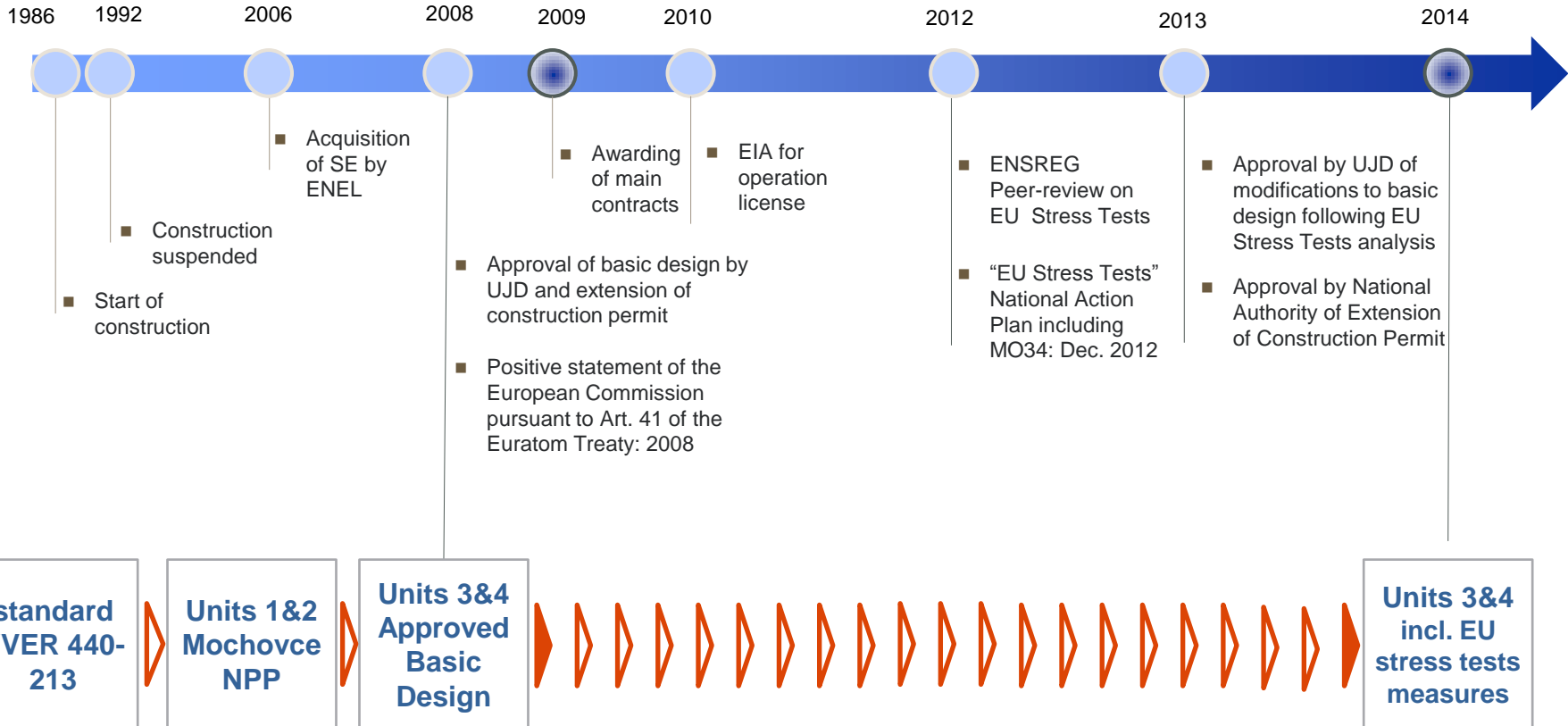
Large number of **design changes** during detailed design development overlapping with the **construction phase**.

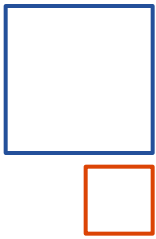


# History



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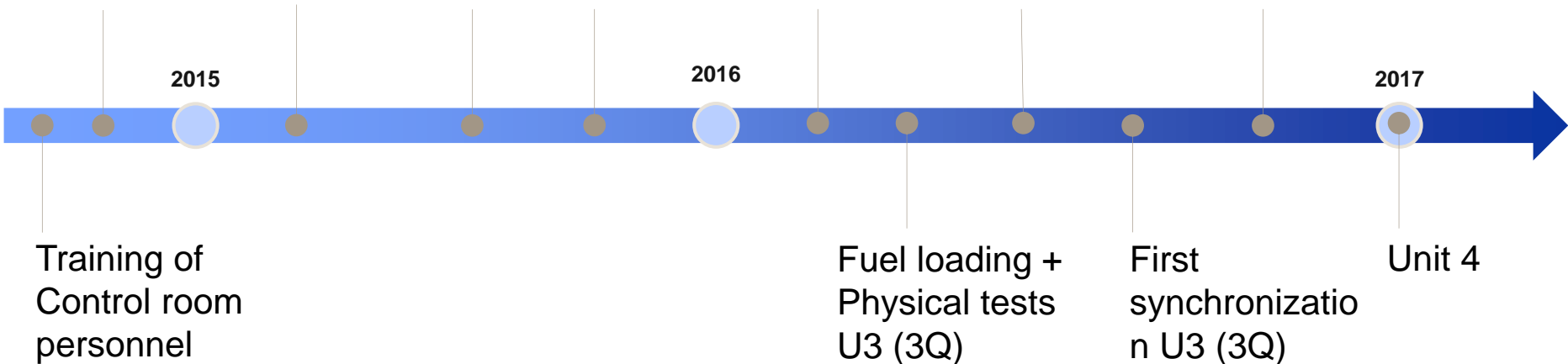
# Completion has begun

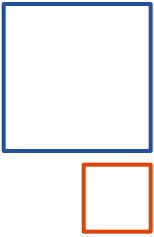


Slovenské elektrárne is an Enel Group Company

## COMMISSIONING

Auxiliary systems (4Q)	I&C (1Q)	Technol. systems CI	Technol. systems NI	Hydro tests U3 (1, 2Q)	Power test U3 (3Q)	COD U3 (4Q)
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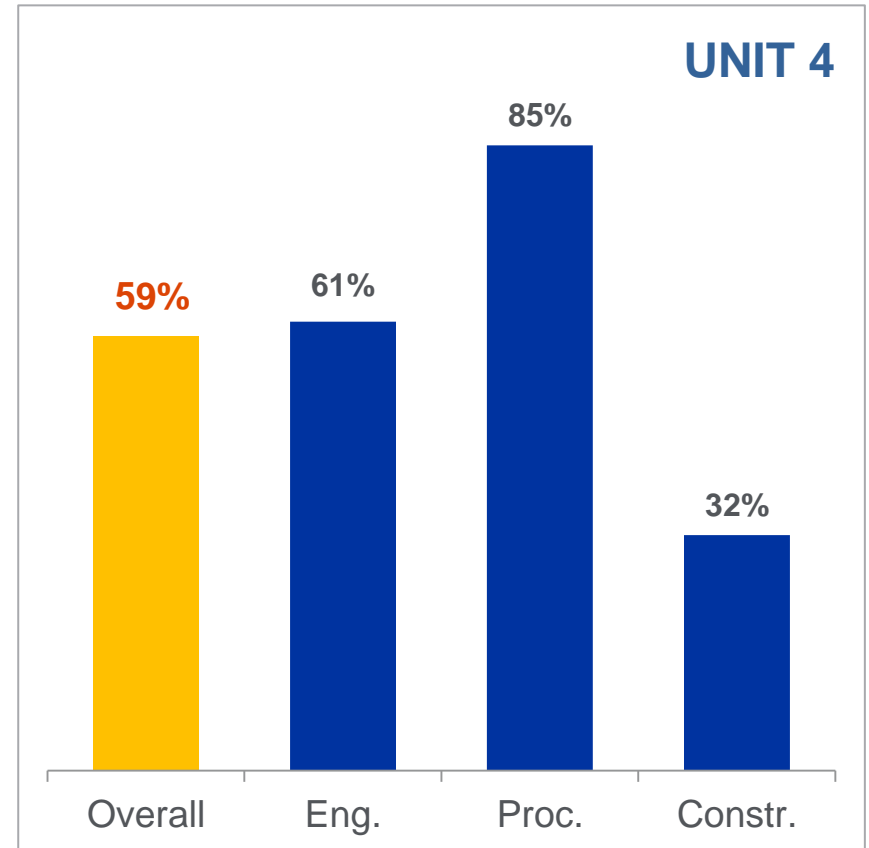
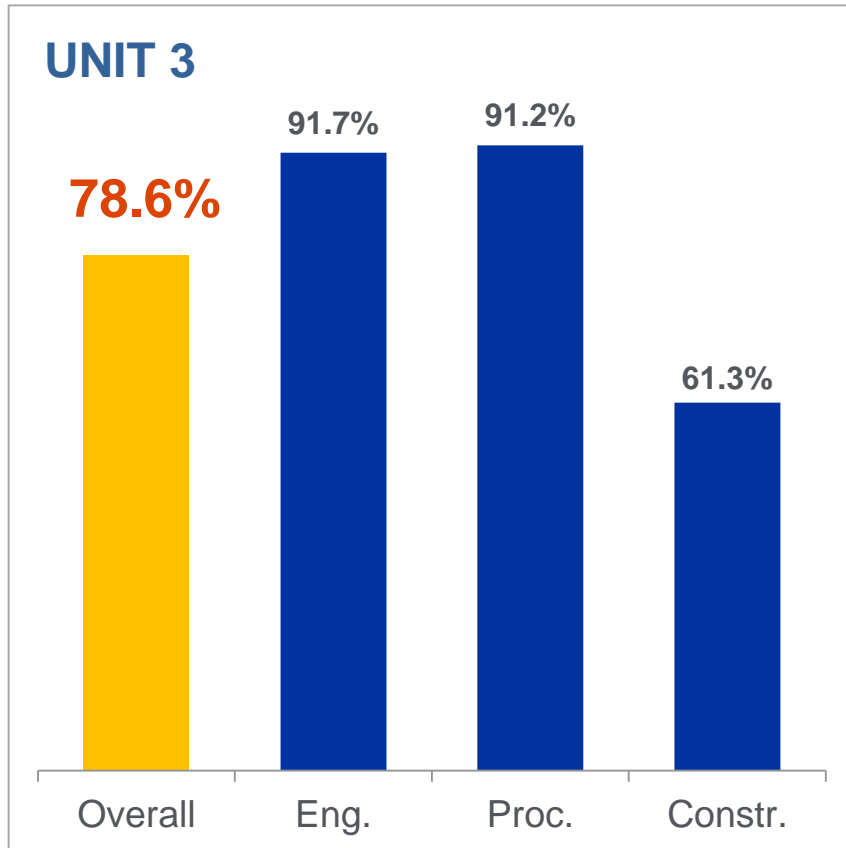




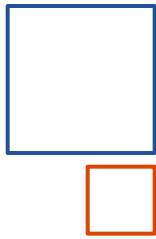
# Current status of the project



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# Mochovce 3-4 and the other NPP's in Europe

## Construction time



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Project Name (Country)	Units	Unit Capacity [MW]	Investor	Architect Engineer	Project Start Date	Completion First Unit		Completion Second Unit	
						Start Operation	Constr. Period (months)	Start Operation	Constr. Period (months)
<b>MO 3&amp;4</b> (Slovakia)	2	500 <sup>(1)</sup> (VVER)	<b>SE</b>	<b>SE</b>	June 2009	2016 <sup>(5)</sup>	<b>88</b>	2017	<b>100</b>
<b>Flamanville 3</b> (France)	1	1600 (EPR)	<b>EDF</b> (2)	<b>EDF</b> (2)	Dec 2007	2016 <sup>(6)</sup>	<b>108</b>	/	/
<b>Olkiluoto 3</b> (Finland)	1	1600 (EPR)	<b>TVO</b> (3)	<b>AREVA</b> (4)	July 2005	2018 <sup>(7)</sup>	<b>155</b>	/	/

(1) Net Technical Capacity; (2) **Electricité de France - Largest Nuclear Utility in the World**; (3) **Teollisuuden Voima Oyj – Finnish Nuclear Power Company**; (4) **World leader in Nuclear Engineering and Construction**; (5) Project Construction Schedule – released July 2014; (6) Public information data released by EdF in July 2011; (7) Public information data released by Areva & TVO in September 2014.

# Challenges of new Builts



Slovenské elektrárne is an Enel Group Company

## FIRST OF A KIND

[common challenges]

- long development time
- highly skilled resources
- design reviews

## MO34

[specific challenges]

- Fukushima and EU stress tests
- safety improvements, requiring design changes during construction
- > 100.000 new design documents
- > 1.000 specialised full time designers

**~ 15 YEARS**  
of no new  
construction

- fragmentation of companies
- reduction of skilled resources

# BROWN FIELD [project comparison]



Slovenské elektrárne is an Enel Group Company

**NO**

design changes

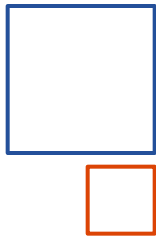
Existing works are a significant advantage when the design of the technological part is the same.

**Significant**

design changes

Existing works are **a criticality** when the detailed design of technological part is substantially changed:

- many additional constraints for the designer
- design must be re-checked and adjusted at site
- no or limited space for additional equipment

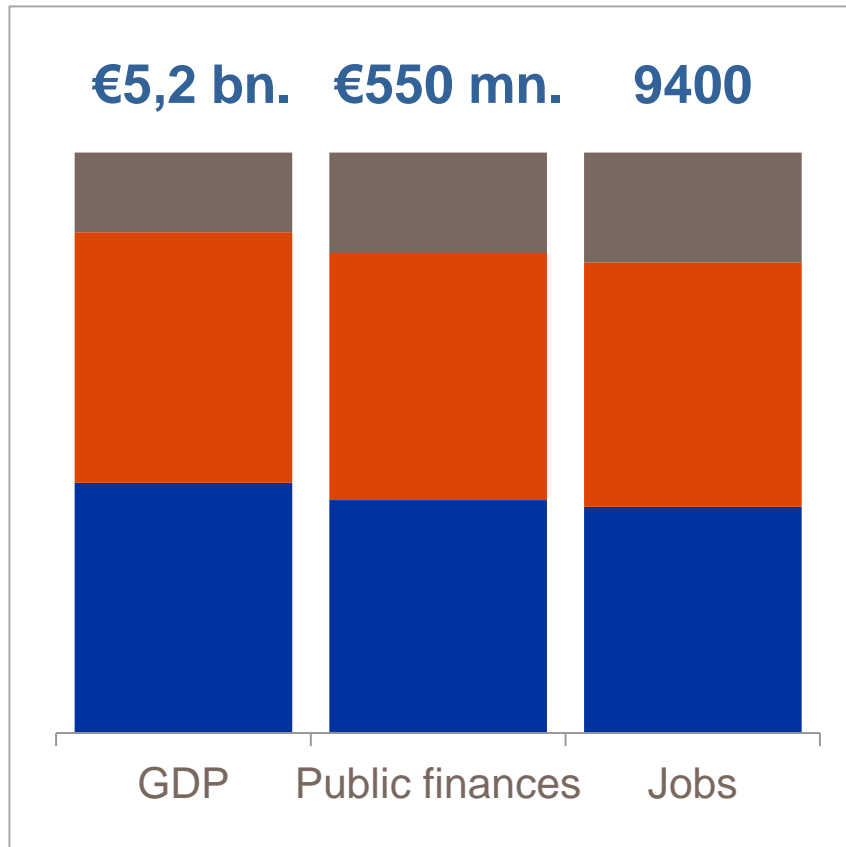


# Benefits of the Project

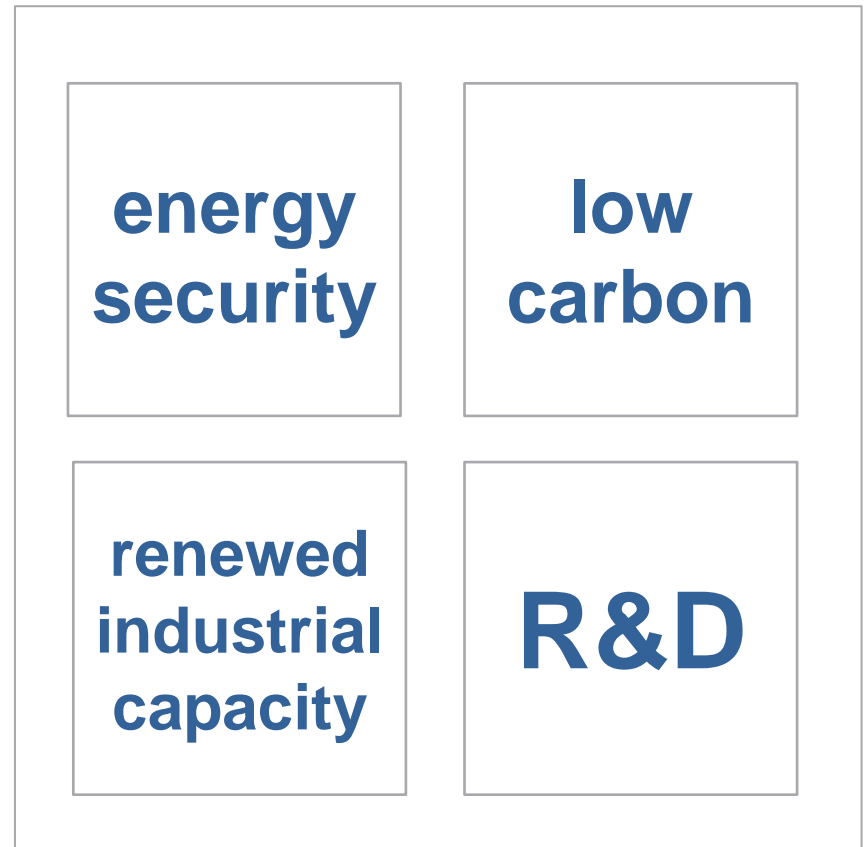


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## Economic benefits



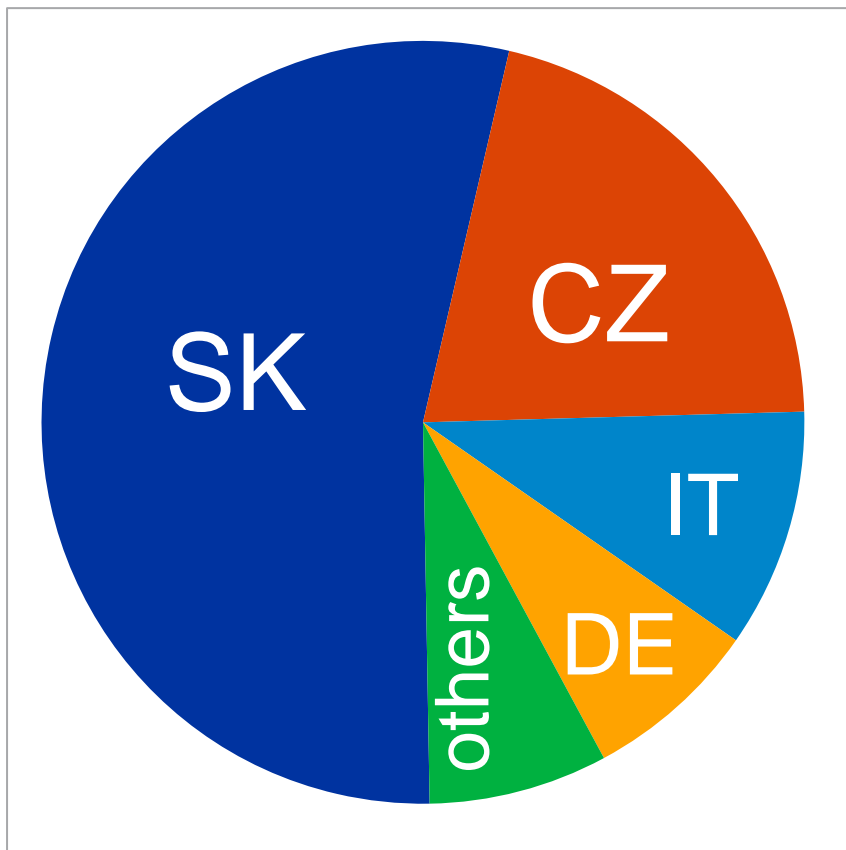
## Long term benefits



# Volume of contracts by suppliers' country of origin



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**SK: 54%**

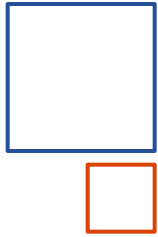
**CZ: 21%**

**IT: 10%**

**DE: 7%**

**others: 7%**





# Conclusions



Slovenské elektrárne is an Enel Group Company

- MO34 is strategic for Slovakia and SE
- Project 80% completed (unit 3), start of commissioning
- Need to approve new budget to avoid further delays, cost and putting project at risk