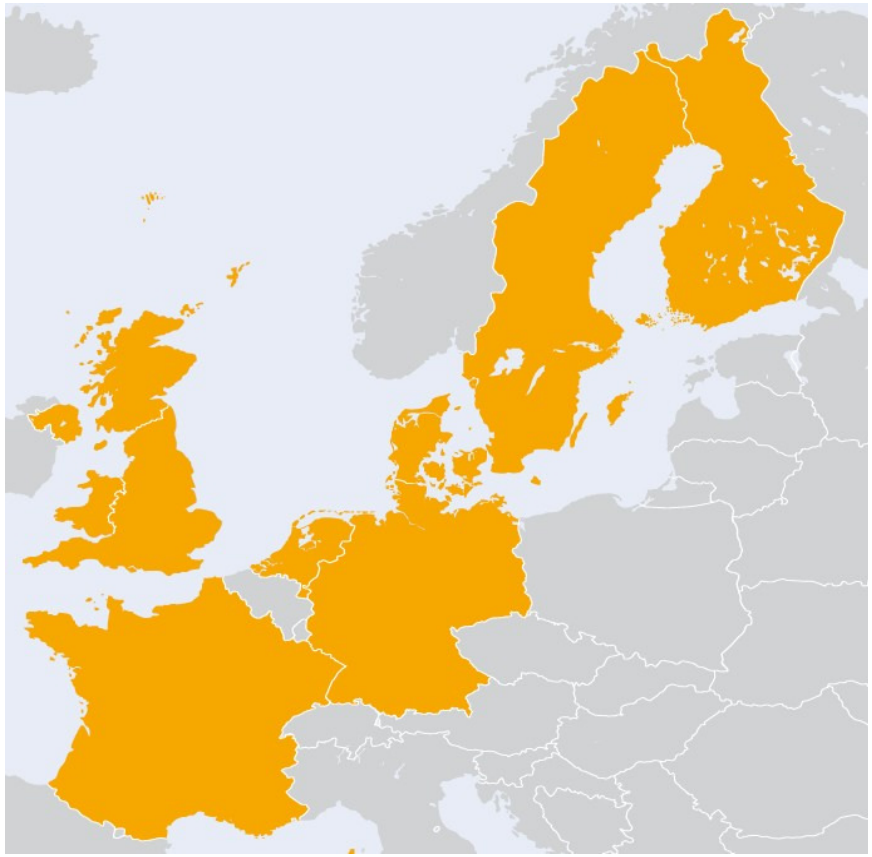
Vattenfall 2012

Presentation Swerma
2012-10-25

Confidentiality - None (C1)

This is Vattenfall

Vattenfall – A European energy company



Vattenfall's main markets are
Sweden, Germany, Netherlands

Vattenfall also has operations in:*
UK, France, Denmark, Finland

Vattenfall's main products are
Electricity, Heat, Gas

Vattenfall produces electricity and heat from six energy sources
Hydro, Nuclear, Coal, Wind, Biomass and Gas

100%-owned by the Swedish state.

* In 2011 operations were also conducted in Belgium and Poland.
Vattenfall's Polish and Belgian operations were divested in December 2011. Significant parts of the Finnish operations were divested in the beginning of 2012

Key facts 2011

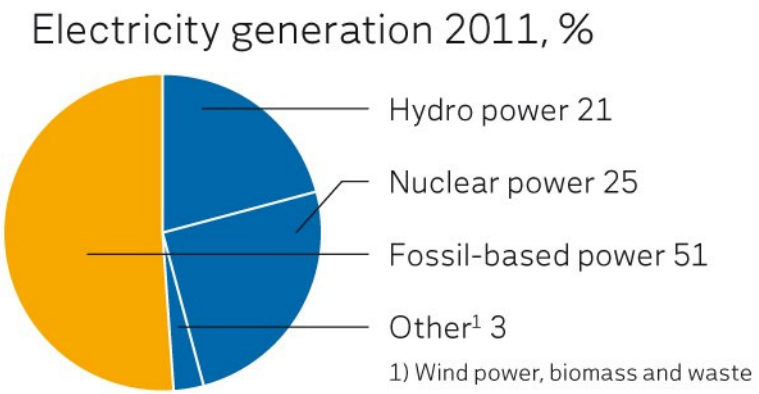
Key data 2011

Net sales	181 040 MSEK
Operating profit	23 209 MSEK
Electricity generation	166.7 TWh
Sales of heat	41.6 TWh
Sales of gas	53.8 TWh
Number of employees	34 700

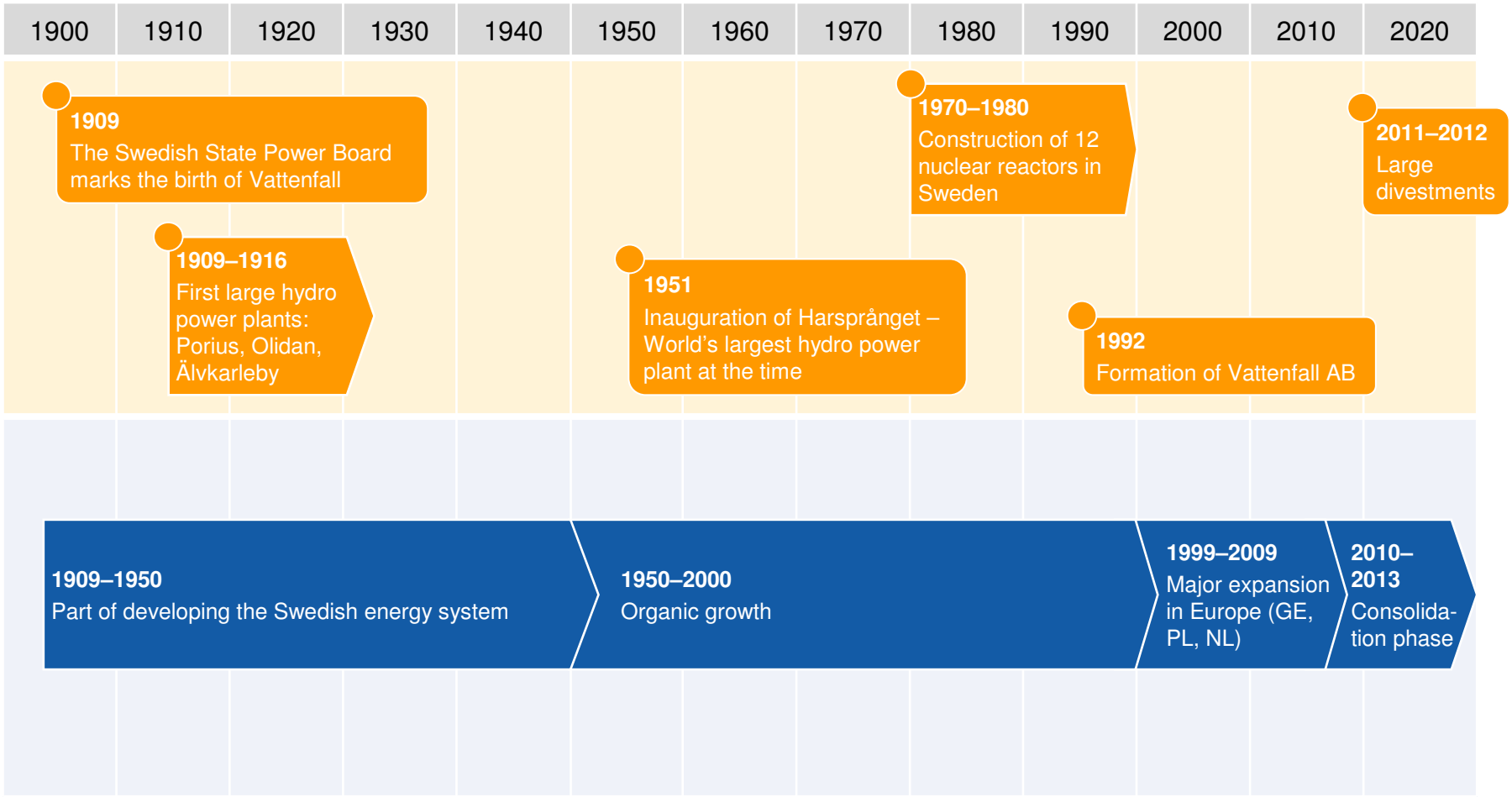
Number of customers

Electricity	7.7 million
Gas	2.2 million
Network	5.7 million

Electricity generation



History of Vattenfall



From Swedish to European in 12 years

Key data 1999	
Net sales	**27 754 MSEK**
Operating profit	5 435 MSEK
Electricity generation	86.9 TWh
Sales of heat	5.3 TWh
Sales of gas	9 TWh
Number of employees	7 991

Key data 2011	
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FROM

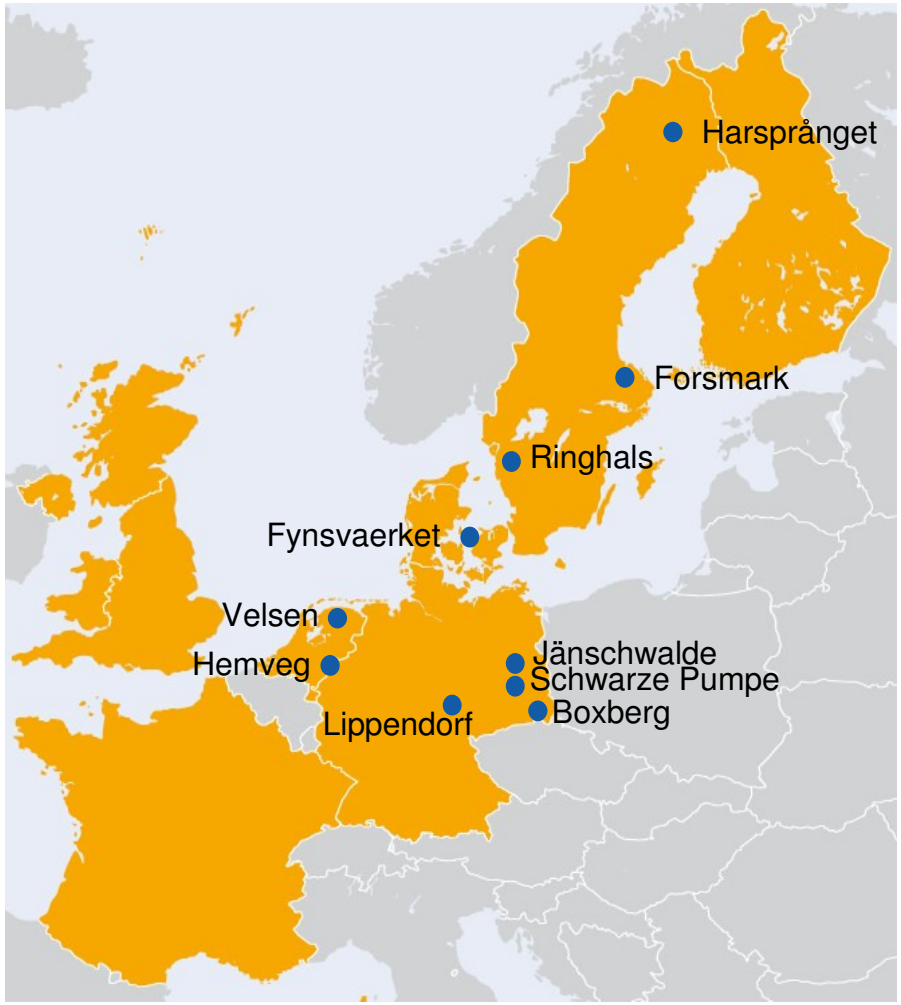
A Swedish energy company with hydro and nuclear

TO

A European energy company with an European energy mix based on coal, hydro, nuclear, gas, wind and biomass

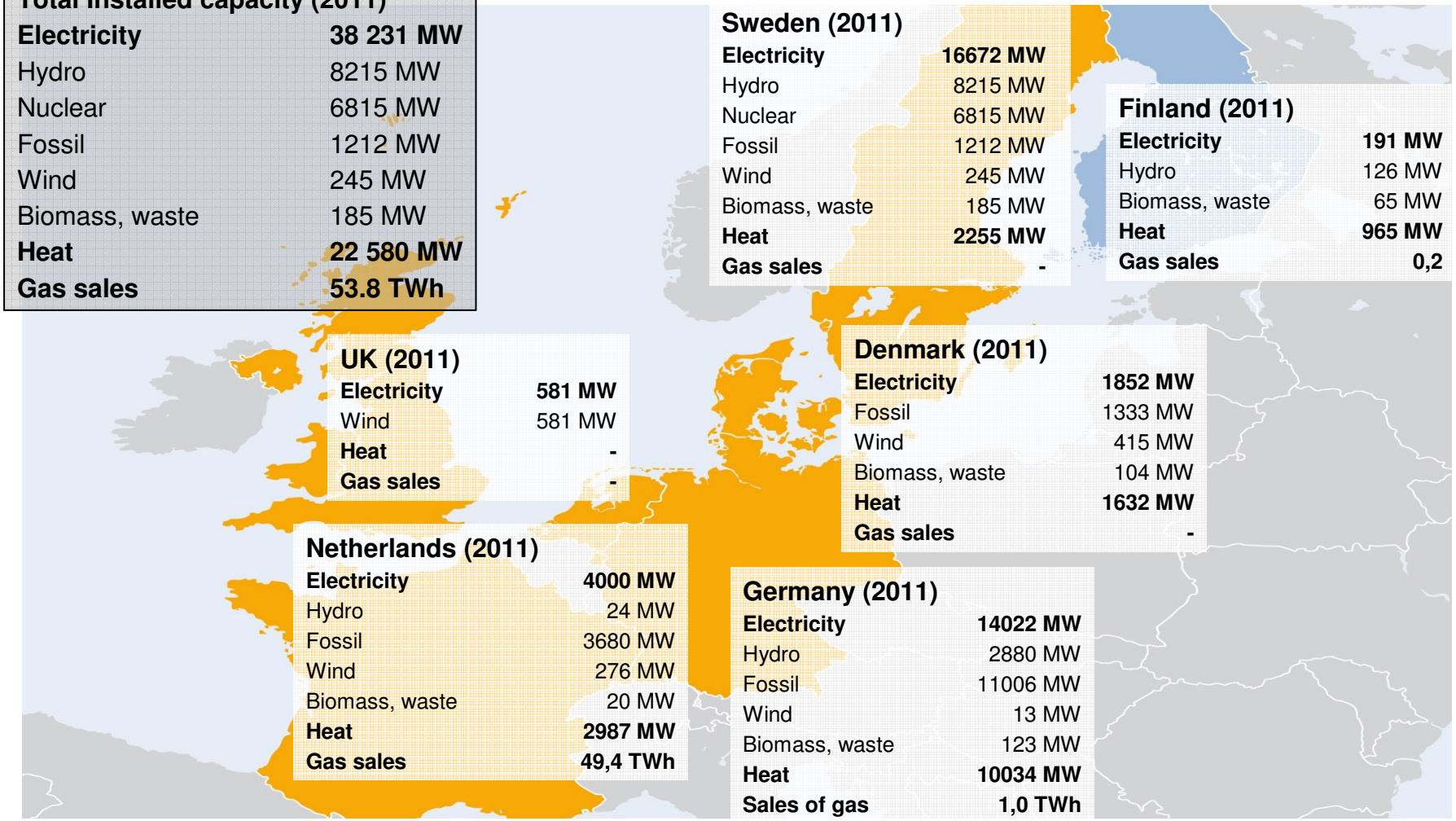
Vattenfall's ten largest power plants

Plant	Energy source	Avg. annual generation	Installed capacity
Ringhals	Nuclear	24.6 TWh	3654 MW
Forsmark	Nuclear	22.8 TWh	3138 MW
Jänschwalde	Lignite	22 TWh	2790 MW
Boxberg	Lignite	15 TWh	1787 MW
Schwarze Pumpe	Lignite	12 TWh	1500 MW
Hemweg	Gas/coal	5 TWh	1249 MW
Harsprånget	Hydro	2.1 TWh	977 MW
Lippendorf	Lignite	6.7 TWh	875 MW
Velsen	Gas	3.0 TWh	834 MW
Fynsværket	Hard coal	2.0 TWh	675 MW



Installed capacity per market

Total Installed capacity (2011)	
Electricity	**38 231 MW**
Hydro	8215 MW
Nuclear	6815 MW
Fossil	1212 MW
Wind	245 MW
Biomass, waste	185 MW
Heat	**22 580 MW**
Gas sales	**53.8 TWh**



Sweden (2011)	
Electricity	**16672 MW**
Hydro	8215 MW
Nuclear	6815 MW
Fossil	1212 MW
Wind	245 MW
Biomass, waste	185 MW
Heat	**2255 MW**
Gas sales	**-**

Finland (2011)	
Electricity	**191 MW**
Hydro	126 MW
Biomass, waste	65 MW
Heat	**965 MW**
Gas sales	**0,2**

UK (2011)	
Electricity	**581 MW**
Wind	581 MW
Heat	**-**
Gas sales	**-**

Denmark (2011)	
Electricity	**1852 MW**
Fossil	1333 MW
Wind	415 MW
Biomass, waste	104 MW
Heat	**1632 MW**
Gas sales	**-**

Netherlands (2011)	
Electricity	**4000 MW**
Hydro	24 MW
Fossil	3680 MW
Wind	276 MW
Biomass, waste	20 MW
Heat	**2987 MW**
Gas sales	**49,4 TWh**

Germany (2011)	
Electricity	**14022 MW**
Hydro	2880 MW
Fossil	11006 MW
Wind	13 MW
Biomass, waste	123 MW
Heat	**10034 MW**
Sales of gas	**1,0 TWh**

Articles of association, vision and strategy

Articles of association, vision and core values

Articles of association from the owner

The object for the Company's activities is to generate a market rate of return by operating a commercial energy business that enables the company to be among the leaders in developing environmentally sustainable energy production.

Vattenfall's vision

Vattenfall will develop a sustainable, diversified European energy portfolio with long-term increased profits and significant growth opportunities. At the same time, Vattenfall will be among the leaders in developing environmentally sustainable energy production.

Core values

Safety

Performance

Cooperation

Vattenfall launched a new strategic direction in 2010

- Greater focus on profitability and value creation
- Focus on three main markets – The Nordic countries, Germany and Netherlands
- Three main products – electricity, heat and gas
- Reduced CO_2 exposure and growth in low CO_2 emitting energy production and in gas

The strategy – two phases

Consolidation phase

- Cost-cutting programme
- Divestment of non-core assets
- Revised investment programme
- New business-led organisation structure

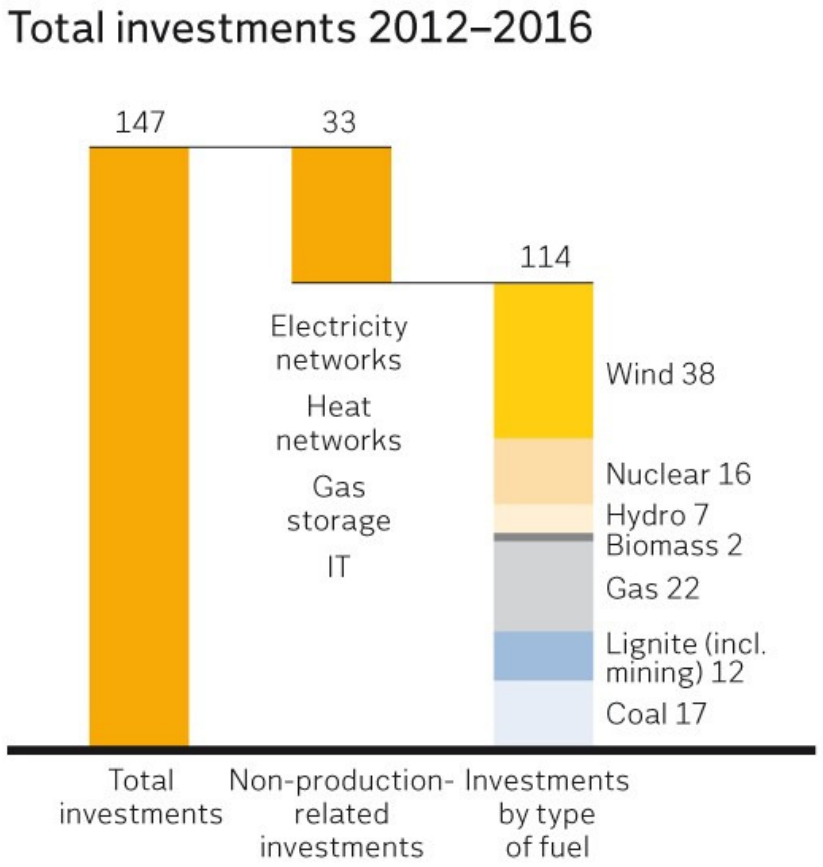
Growth phase

- Reduced CO_2 exposure
- Focus on large markets with good growth opportunities and on markets in which Vattenfall has sizeable positions
- Focus on growth in low CO_2-emitting energy production, and in gas.

Investment plan for 2012-2016

Vattenfall plans to invest 147 billion SEK during the period 2012-2016

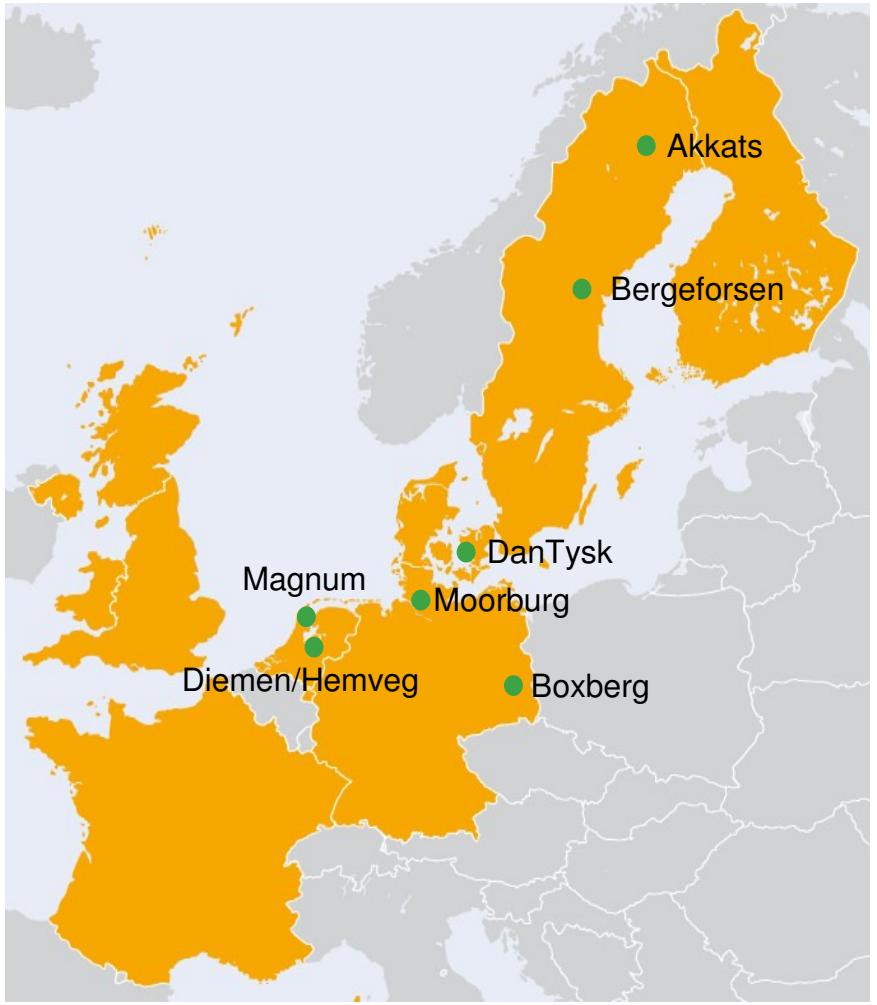
- 114 billion SEK in production of electricity and heat
- 33 billion SEK in electricity and district heating networks, IT and gas storage

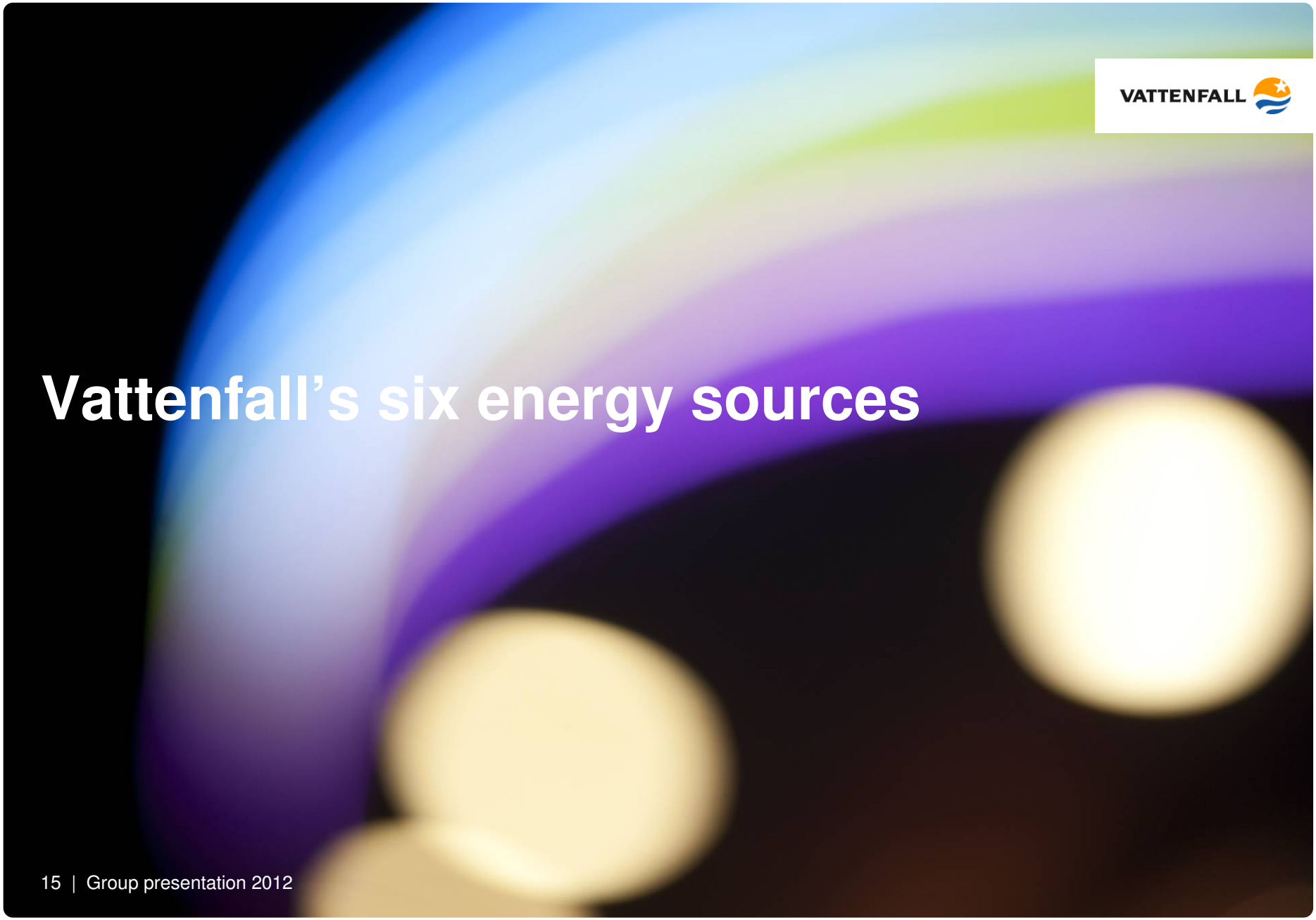


Vattenfall's largest ongoing power plant projects

When completed, the ongoing projects will increase Vattenfall's installed capacity by more than **3,800 MW**

Plant	Energy source	Installed capacity	Start-up
Akkats, SE	Hydro	Modernization of 150 MW	2012 and 2015
Diemen, NL	Gas	435 MW electricity, 260 MW heat	2012
Hemweg, NL	Gas	435 MW	2012
Magnum, NL	Gas	1,311 MW	2012
Moorburg, DE	Hard coal	1,640 MW	2014
Boxberg, DE	Lignite	675 MW	2012
DanTysk, DE	Offshore wind	288 MW	2014

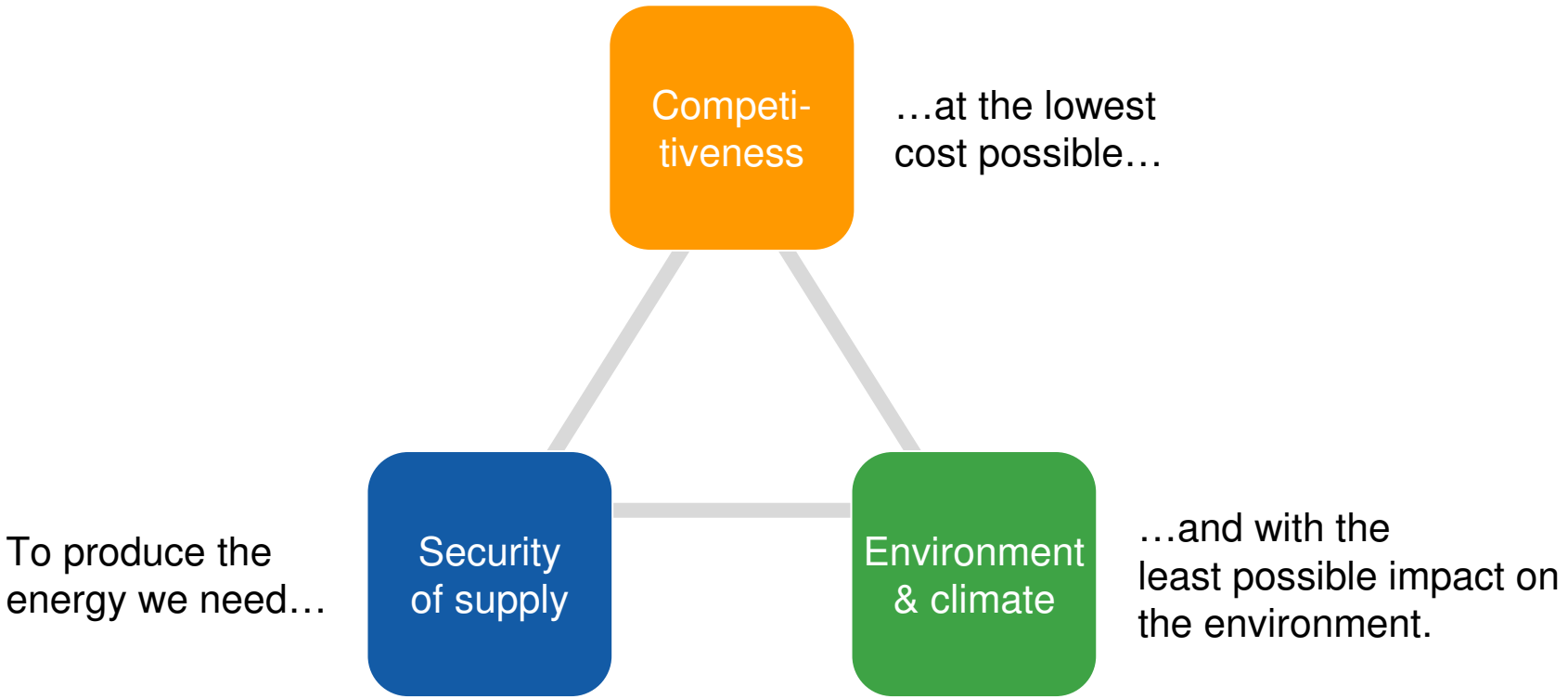




Vattenfall's six energy sources

Vattenfall must balance different dimensions

Vattenfall shares society's challenges:

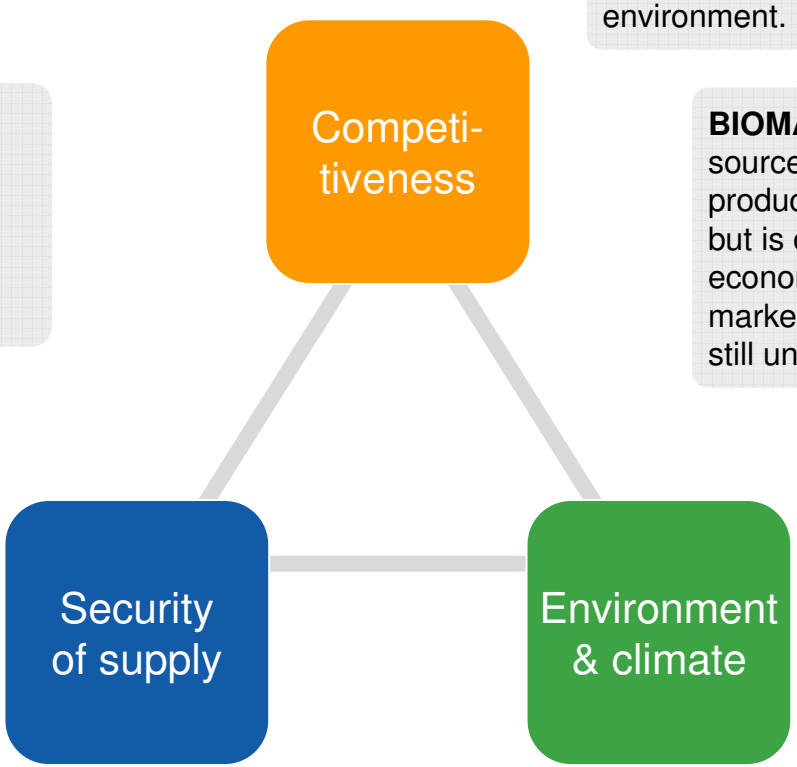


All energy sources have a role to play

COAL delivers large volumes of heat and electricity, but produces high levels of CO_2 emissions and the mining process impacts the local environment

HYDRO is a renewable, low-emitting and competitive energy source that can be used as both base load and balancing power. It has effects on the local environment.

NUCLEAR is low-emitting, competitive and deliver large volumes of electricity, but has environmental challenges connected to mining and radioactive waste.



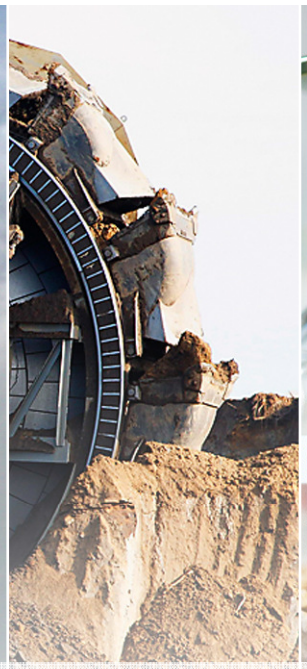
BIOMASS is a renewable energy source that can be used to produce both electricity and heat, but is dependent on subsidies for economic competitiveness. The market for sourcing biomass is still undeveloped.

GAS is a growing energy source within Europe that is economically attractive and provides flexibility and security of supply. It also has lower specific CO2 emissions than other fossil fuels.

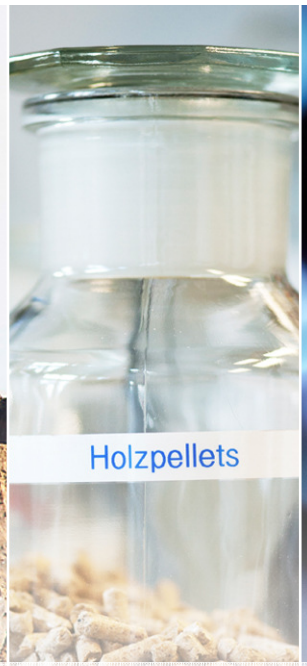
WIND power is a renewable and low-emitting energy source which adds intermittent power to the energy system. It is dependent on subsidies for competitiveness.

Vattenfall is investing in all six energy sources

WIND
Vattenfall will continue to expand offshore wind in the North Sea countries and onshore in prioritised markets

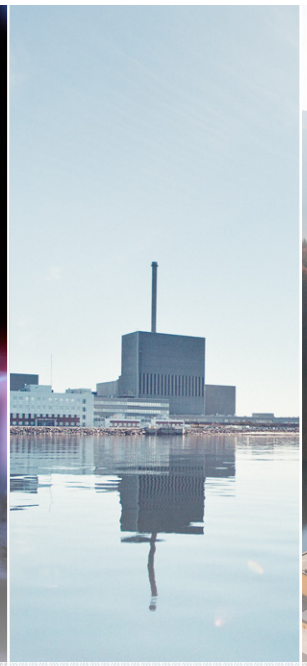


COAL
Vattenfall is investing to enhance efficiency and reduce CO_2 emissions in existing plants, but will not build any new plants without commercially proven CCS.

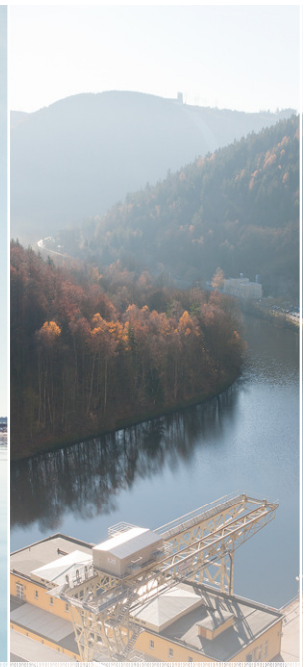


BIOMASS
Vattenfall will increase co-firing of biomass in existing coal-fired plants to reduce CO_2 emissions.

GAS
Vattenfall will maintain its current portfolio and will continuously monitor the potential for growth



NUCLEAR
Vattenfall aims to maintain its current nuclear positions in Sweden, and will keep its options open for future growth.



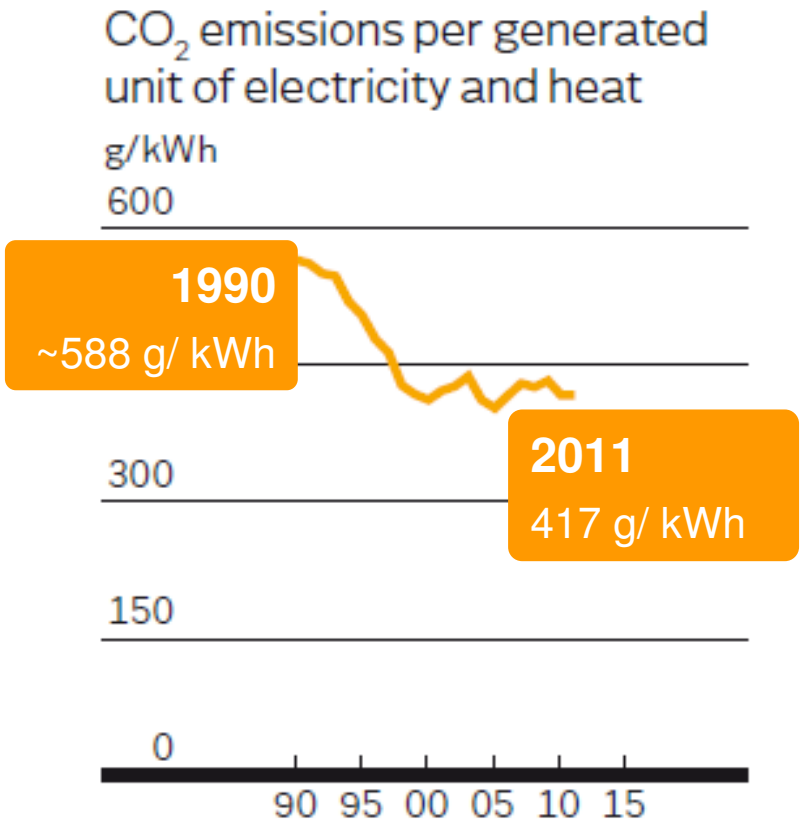
HYDRO
Vattenfall is exploring options to build small-scale hydro power plants and to acquire larger hydro power plants in central and western Europe.

CO_2 emissions 2011

Vattenfall has reduced its CO_2 emissions by 26.3% since 1990

Emissions 1990:
~120 million tonnes*

Emissions 2011:
88.6 million tonnes*



* In pro rata terms

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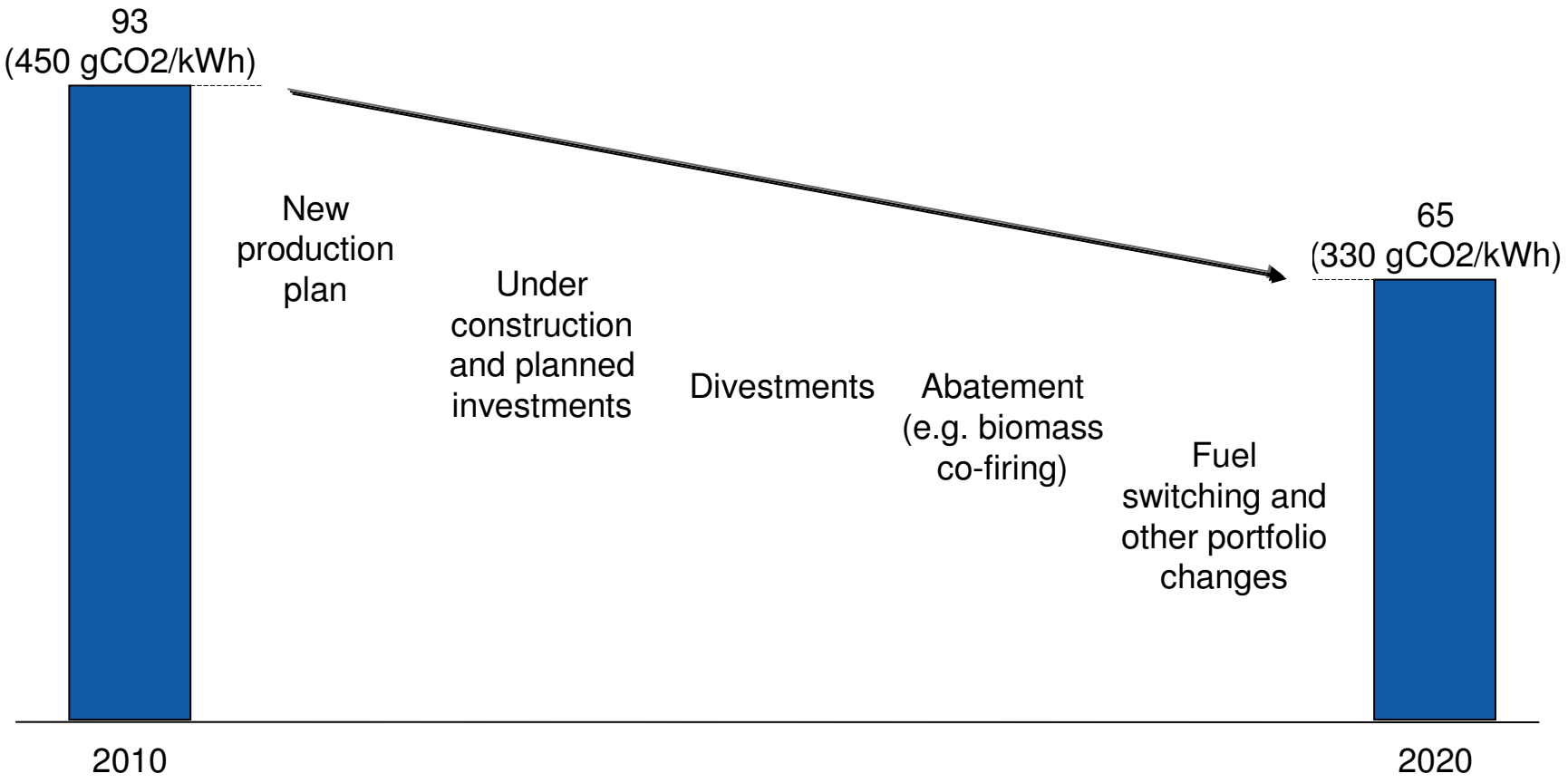
Vattenfall's path to reduced CO_2 exposure

Total absolute CO_2 emissions in Vattenfall's portfolio
Mtonnes, specific emission within brackets

Pro-rata ownership share
Electricity and heat



Thank you for your attention!

For more information,
visit **www.vattenfall.com**

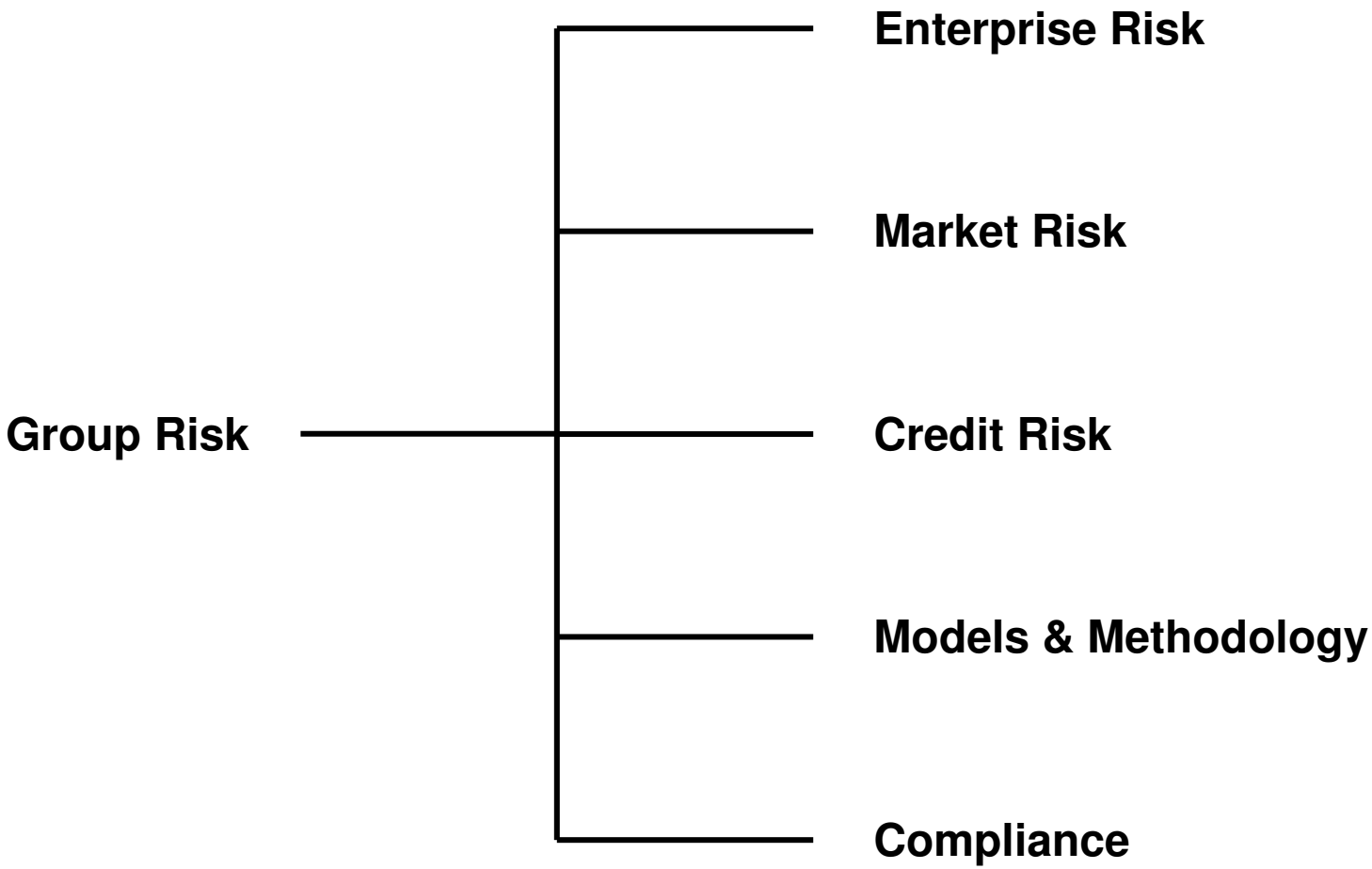
ERM at Vattenfall

Risk Management

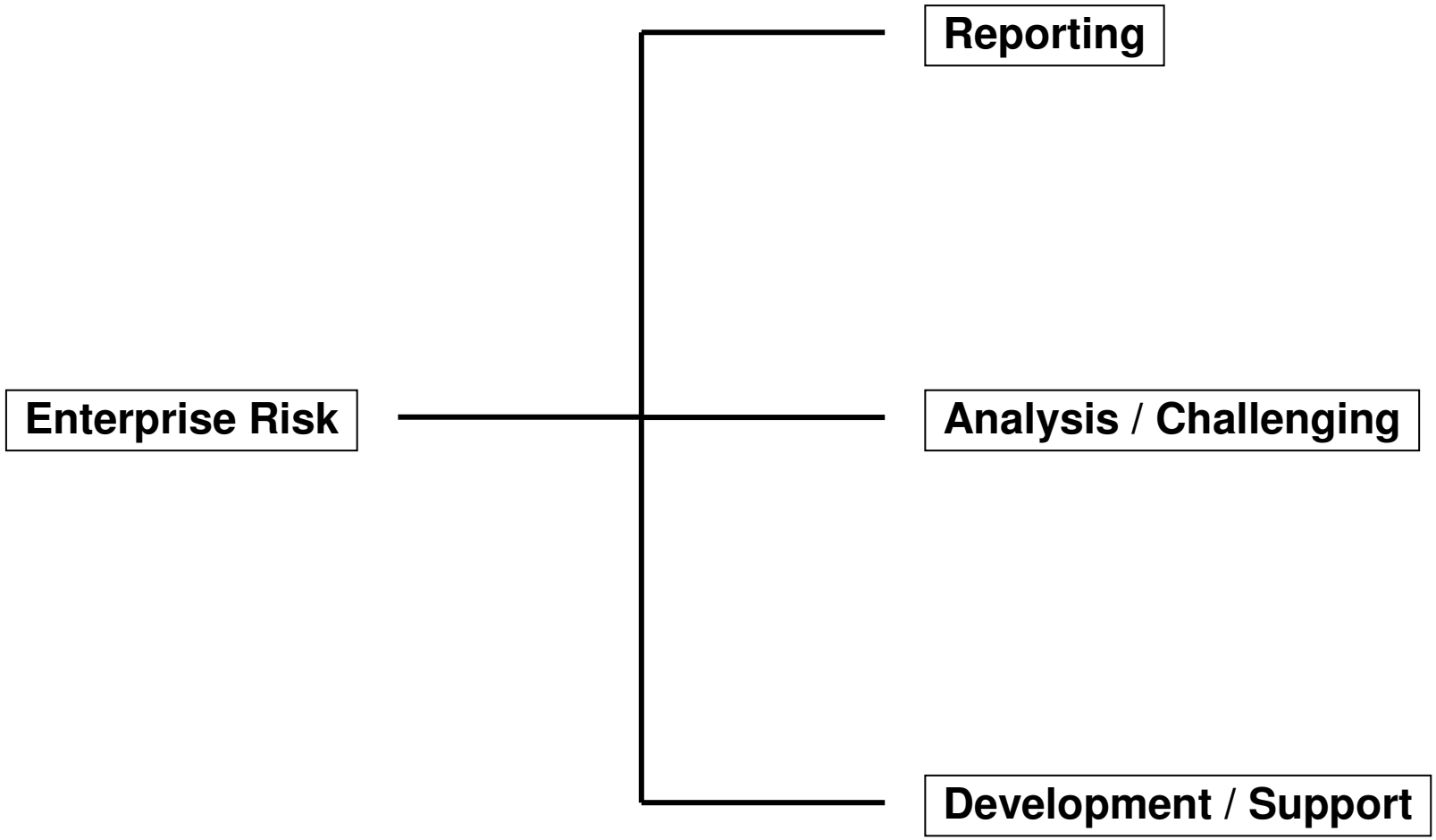
2012.10.25

Confidentiality: None (C1)

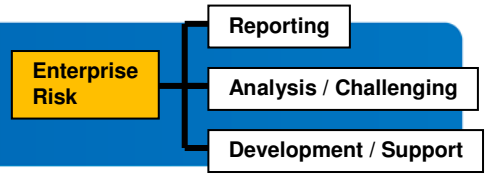
Risk Management at Vattenfall



Enterprise Risk Management at Vattenfall

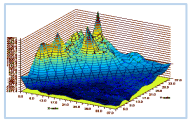


Purpose for ERM at Vattenfall



A support for management in business decision

A better risk awareness



A better transparency

A common structure and a common platform

Easier to compare different business and projects

A possibility to aggregate

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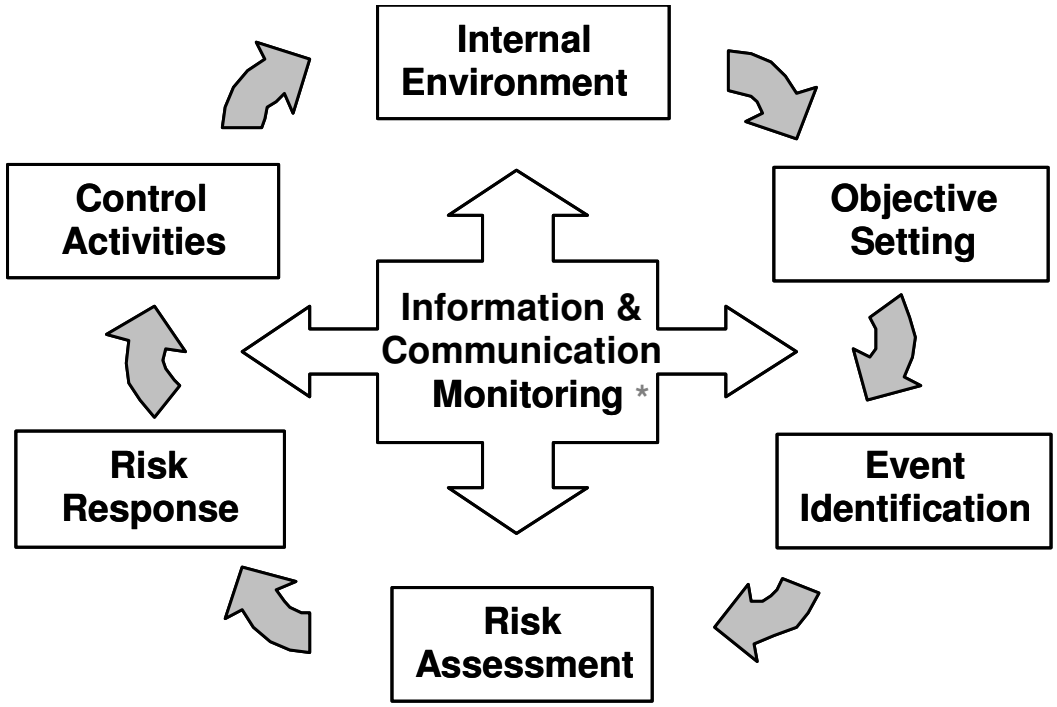
Enterprise Risk Management Process

Enterprise Risk

- Reporting
- Analysis / Challenging
- Development / Support

Sets the basis for how risk is viewed and addressed by in the organisation



Instructions and procedures

Objectives support and align with the mission and are consistent with its risk appetite

Avoid, accept, reduce or share risk

Events affecting achievement of objectives

Evaluate probability and impact, as a basis for determining how risk should be managed

* Enable employees to carry out their responsibilities and to identify activities to improve the process

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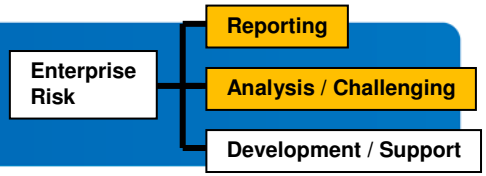
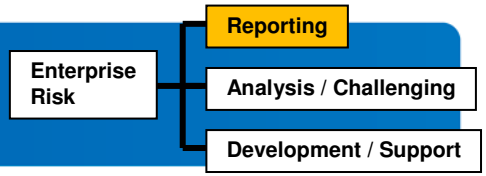
Risk Reporting Process



A number of different risk animals…



Business Planning Period

Strategic Planning Period & Beyond

Business Risks

Business risks are risks that can occur during the business planning period, is linked to the forecasting and with an effect on the yearly planned EBIT and (if applicable) with an effect on coming year/s (total risk)

- Business risks are quantified into probability distributions using a scenario based approach. This is done to describe the uncertainty related to the planned EBIT.

Extraordinary Risks

Extraordinary risks are the “black swans” of Vattenfall, these are risks with very low probability (=<0,1%) and very high consequences

- Extraordinary risks could occur both within the business planning and strategic time horizon, however they shall be reported in the same format as strategic risks
- Financial impact is indicated as NPV

Strategic Risks

Risks that could occur beyond the business planning horizon for which active risk response is needed within five years. Business risks that are supposed to persevere are only strategic risks if there will be a severe change in the coming years.

- This assessment is mainly qualitative, all risk are plotted in a risk matrix (heat map)
- Financial impact is indicated as NPV

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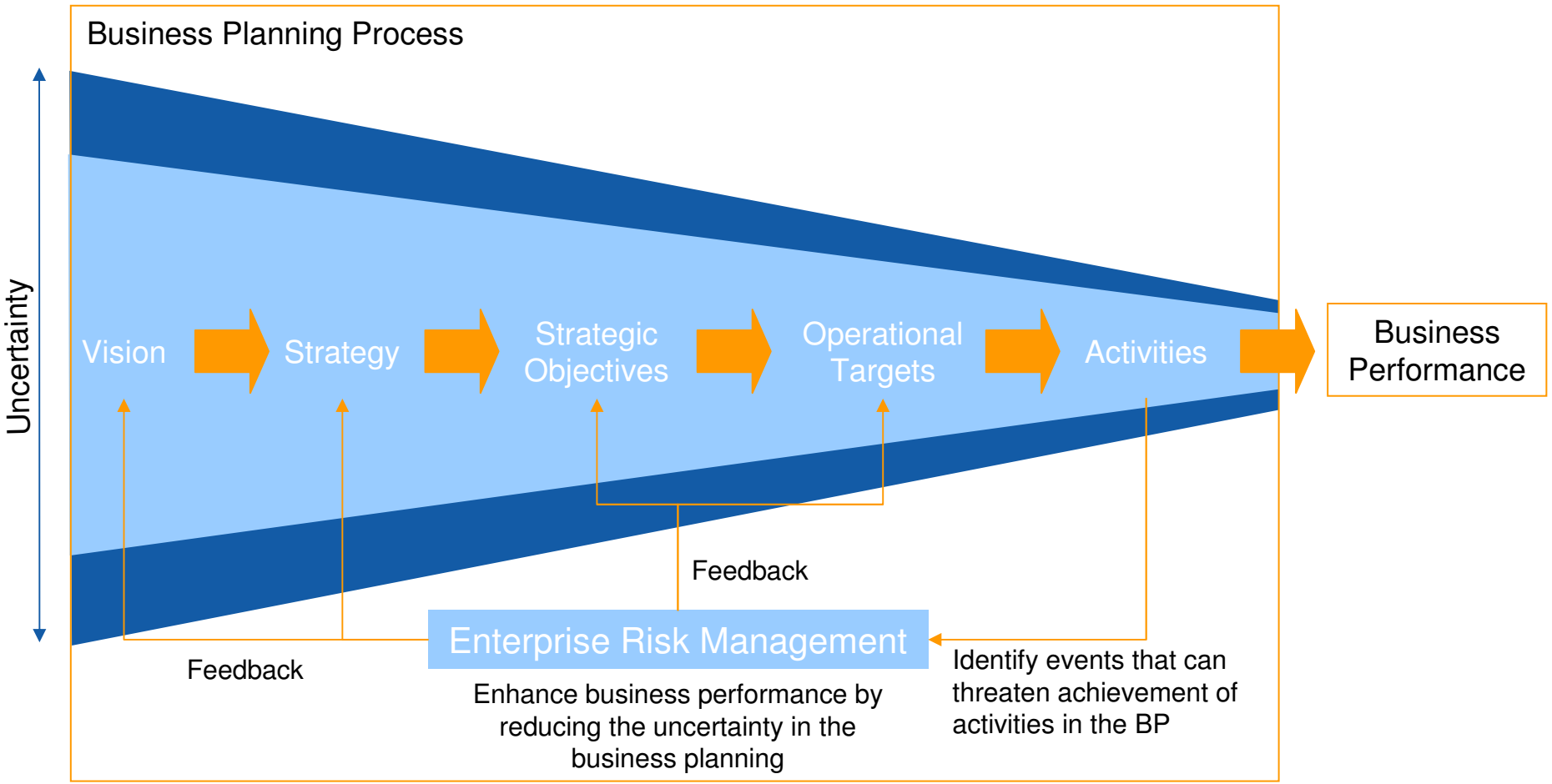
ERM, a part of the Business Planning Process

Enterprise Risk
- Reporting
- Analysis / Challenging
- Development / Support



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Uncertainty and risk

Enterprise Risk
- Reporting
- Analysis / Challenging
- Development / Support

The business environment we operate in is complex and uncertain…

- IT-infrastructure
- Operational performance
- Security
- New technology
- Stricter laws
- Political influences
- Governing authorities
- Social trends
- Changing market
- Safety
- Environmental demands
- Financial challenges
- Corporate culture
- Business processes

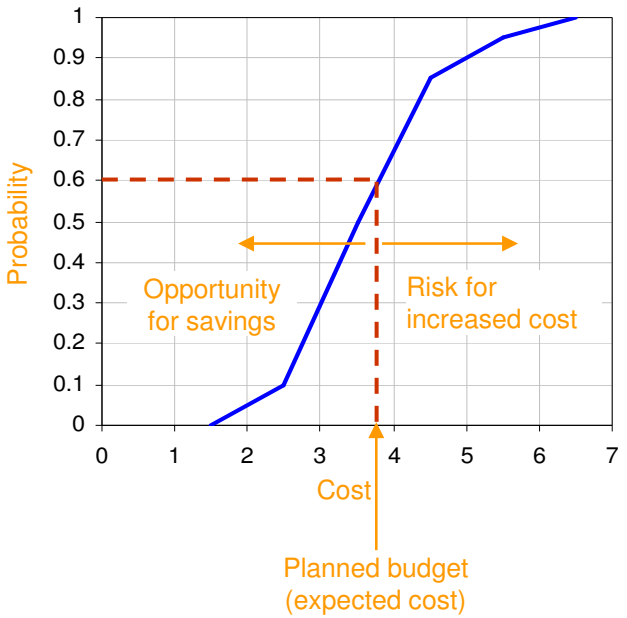
OPPORTUNITY !

Positive outcome of an event

Uncertainty*

Negative outcome of an event

RISK !



*According to the COSO, ERM Framework chosen by Vattenfall

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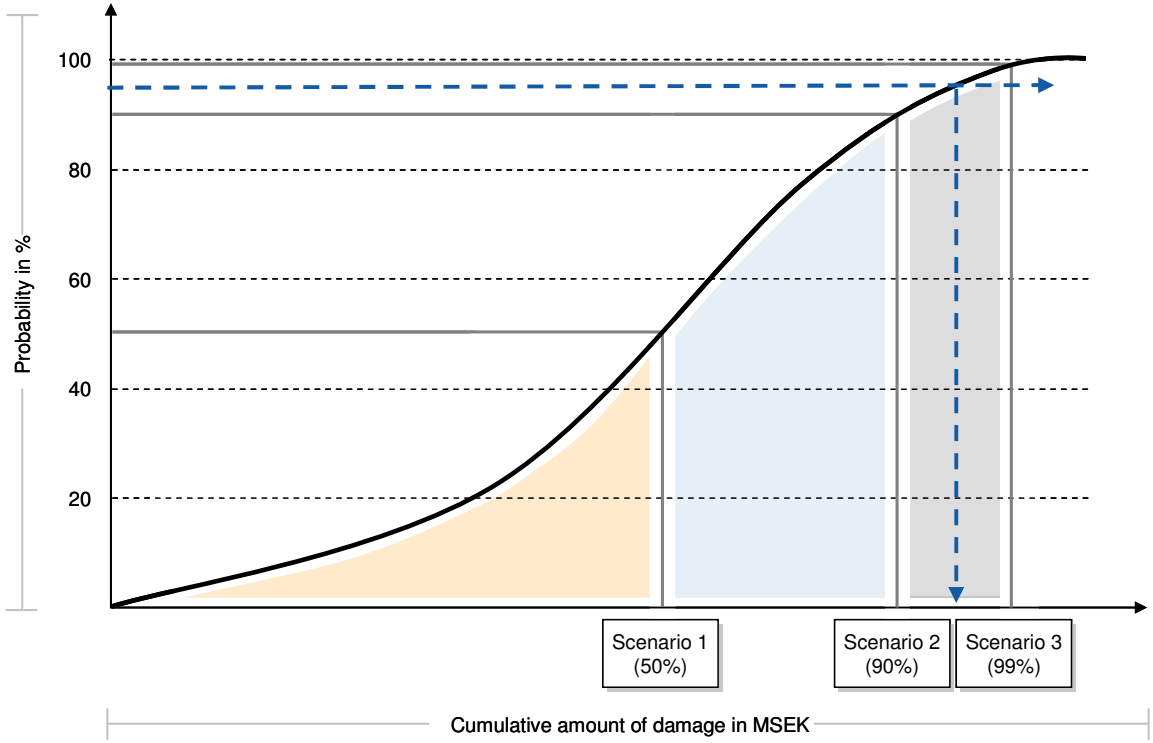
Explanations – Quantification

Basic principle of risk evaluations



Causes
(Described in scenarios 1-3) → **Effects**
(Quantified into economic impact for scenarios 1-3)

Scenario 1 (50%):
Amount of damage, that is exceeded every 2 years in average

Scenario 2 (90%):
Amount of damage, that is exceeded every 10 years in average

Scenario 3 (99%):
Amount of damage, that is exceeded every 100 years in average

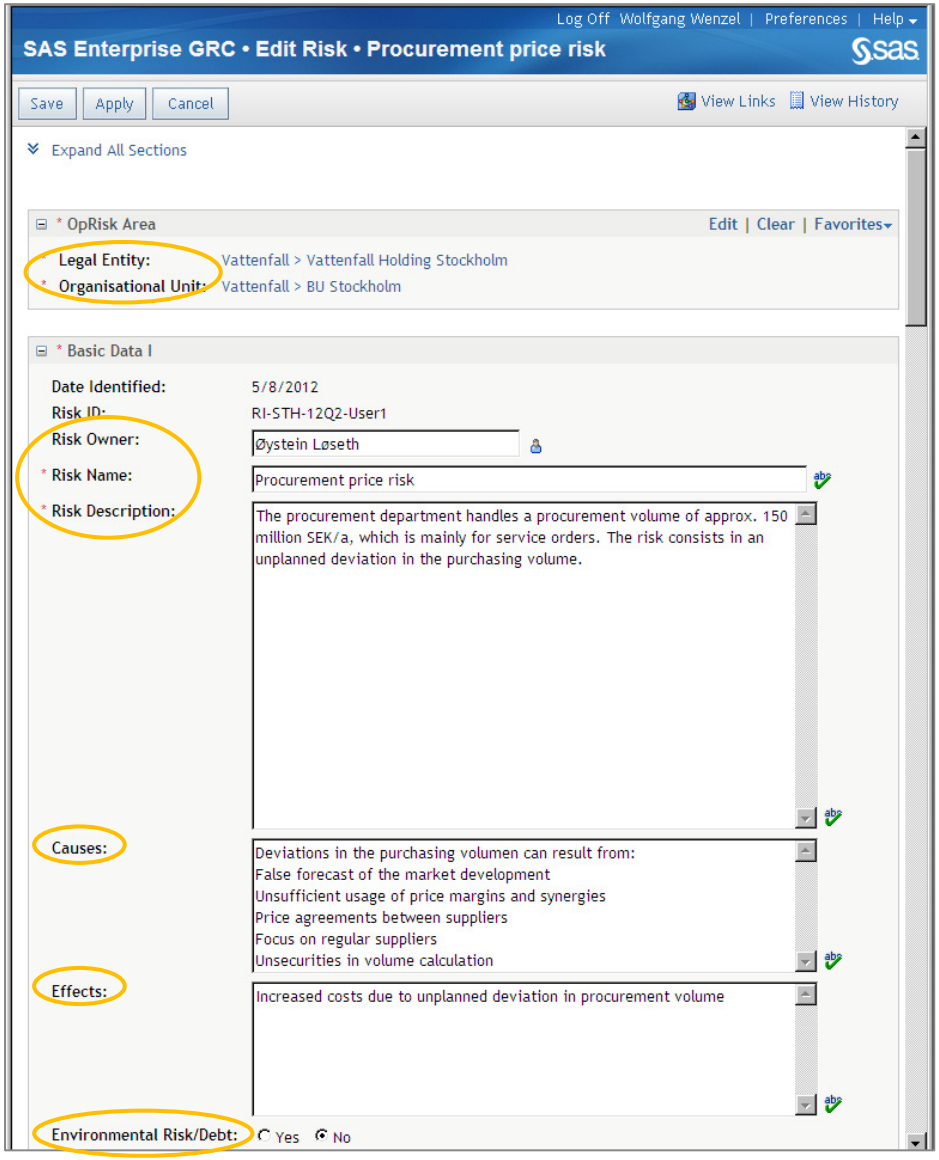
Value-at-Risk at 95%-confidence level
„Which maximum loss will not exceed within a certain time interval (liquidation period) with a certain probability (confidence level 95 %)? “

Basic data I/II

a) Section OpRisk Area:
   - Legal Entity
   - Organisational Unit

b) Section Basic Data I:
   - Risk Owner
   - Risk Name
   - Risk Description
   - Causes
   - Effects
   - Environmental Risk/Debt
   - Environmental Debt (if appl.)
   - Environmental Category (if appl.)

   …



Basic data II/II

…

- Assessment Principles
- Activation

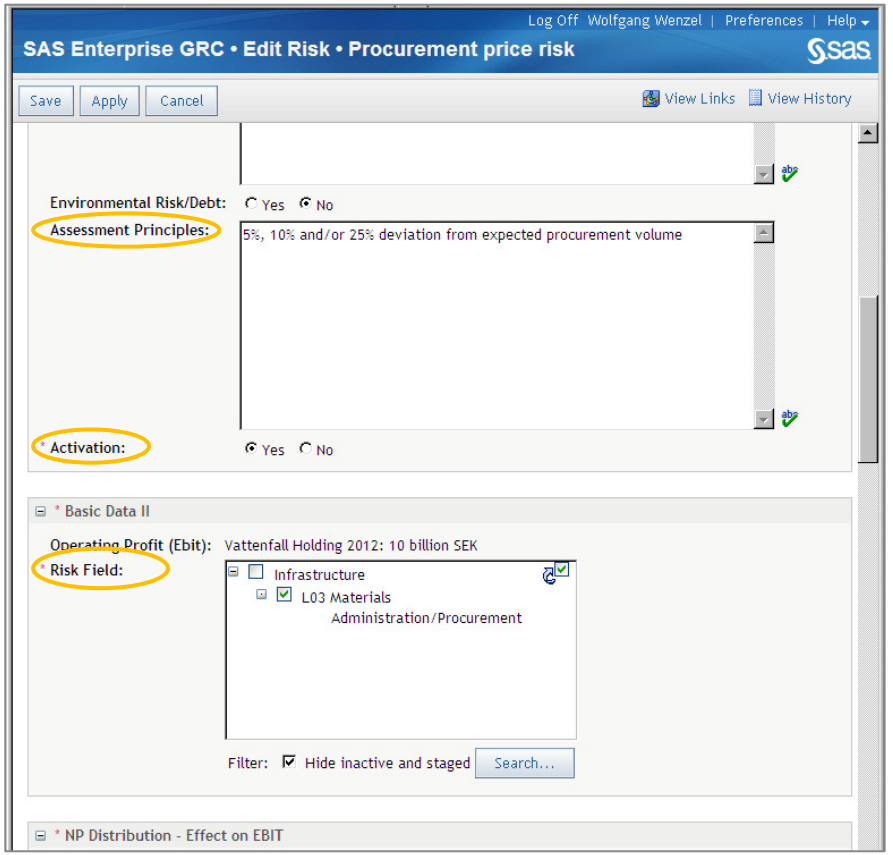
c) Section Basic Data II:

- Risk Field

Note:

The OpRisk Area and Basic Data can be updated anytime independent from the assessment by opening the risk in the risk register (see page 9).

The Operating Profit is maintained centrally by Risk Management. You are not able to edit this field.



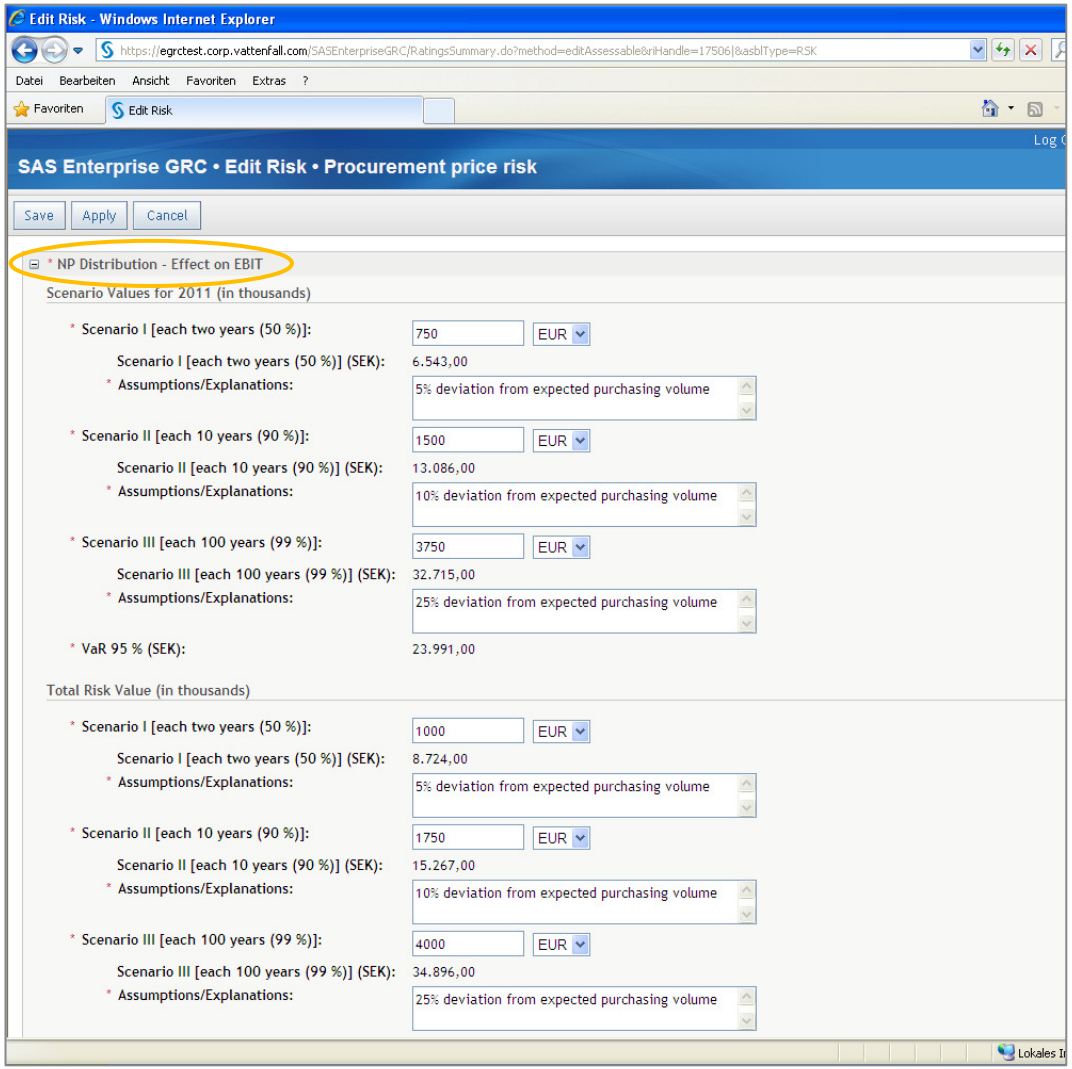
Risk assessment

a) The rating template for the NP distribution contains the assessment for the current business year (here 2012), the total risk value and the next business year (here 2013).

b) Update the financial loss value for each scenario of the current year, the total risk value and the next year.

c) Update all non-financial consequences (e.g. environmental consequence) for each scenario of the total risk value by selecting from the dropdown menu.

d) Enter the underlying “Assumptions/ Explanations” for each scenario in order to specify the more general assessment principles.



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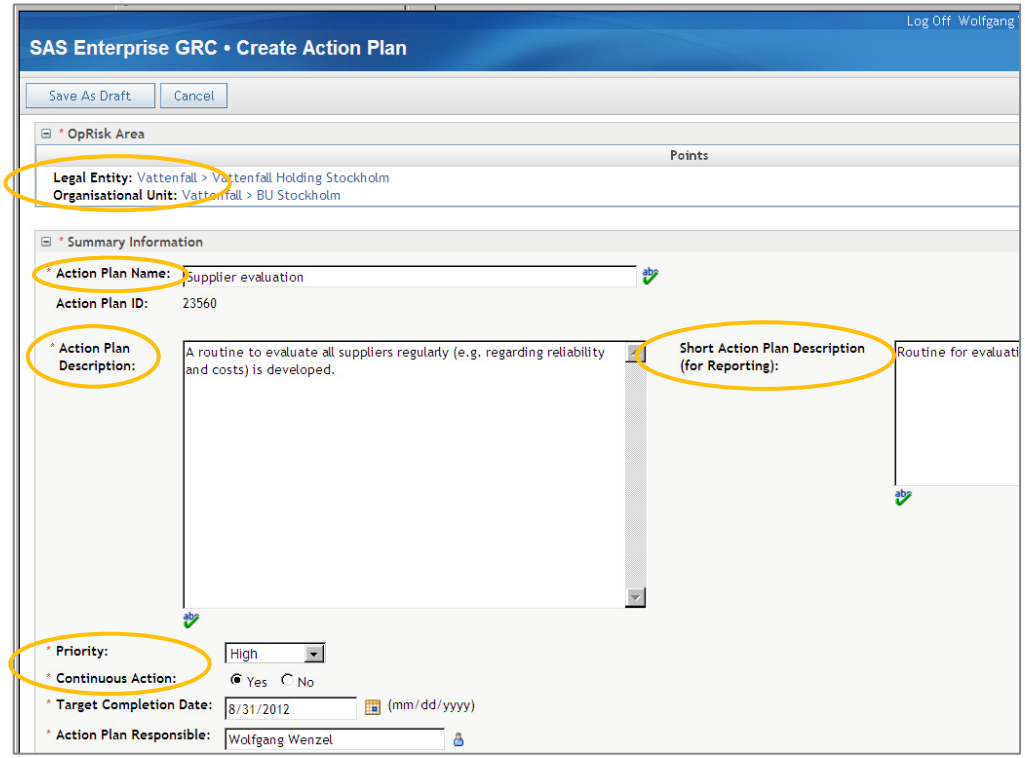
Action Plan I/II

a) Section OpRisk Area:
   - Legal Entity
   - Organisational Unit

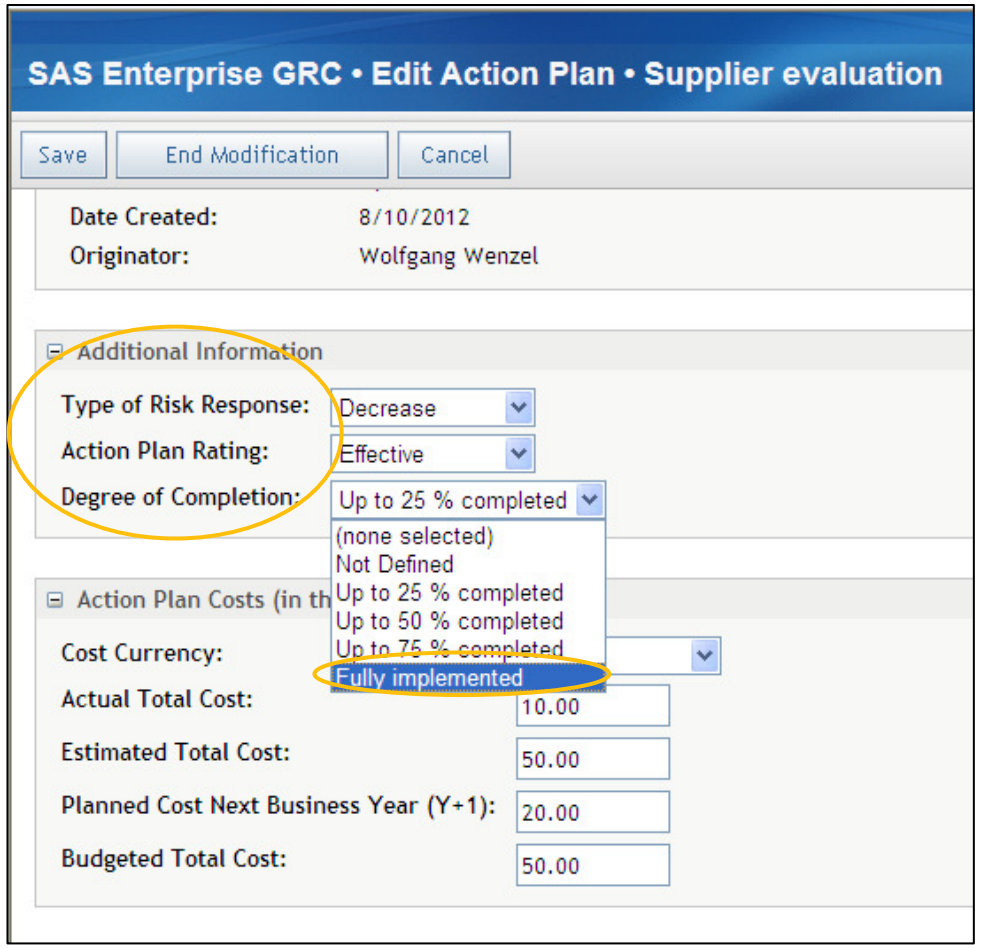
b) Summary Information
   - Action Name
   - Action Plan Description
   - Short Action Plan Description
   - Priority
   - Continuous Action
   - Action Plan Responsible

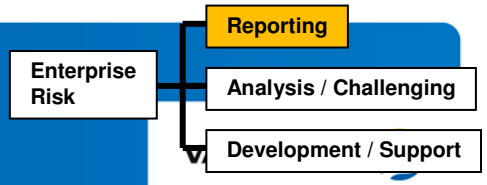


Action Plan II/II

a) Additional Information
   - Type of Risk Response
   - Action Plan Rating
   - Degree of Completion

b) Action Plan Costs
   - Currency
   - Actual Total Cost
   - Estimated Total Cost
   - Planned Cost Next Business Year
   - Budgeted Total Cost





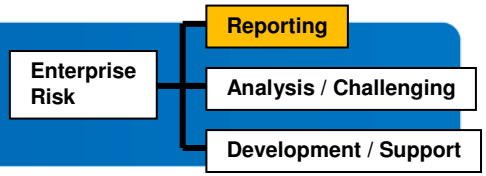
Group Risk Report 3rd Quarter 2012
Enterprise Risk Management

Risk Management

2012.10.16

Confidentiality: High (C3)

Highlights



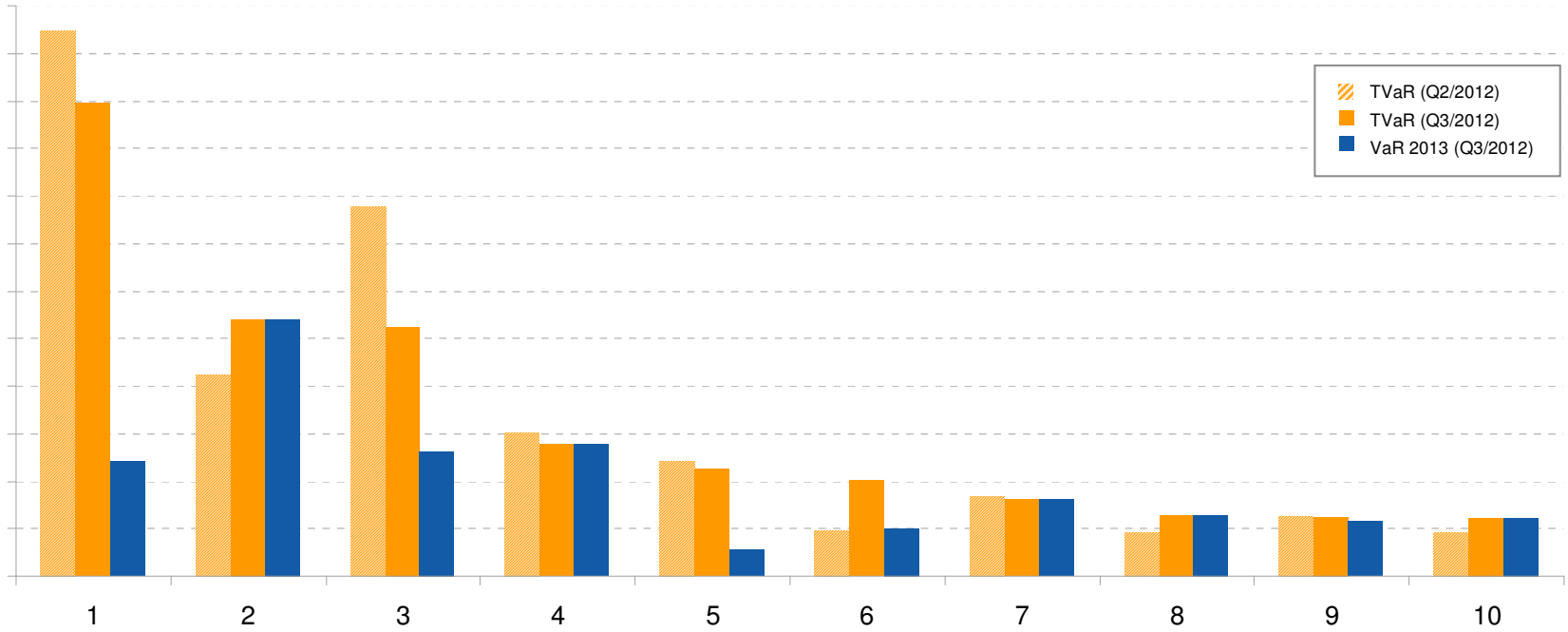
- **Group wide aggregated risk position** “Business Risks for 2013”: nn **billion SEK** (nn billion SEK for 2012 as of Q2 2012). The overall risk position is stable. For details, please refer to BD reporting.

Top 10 Business Risks

Enterprise Risk

- Reporting
- Analysis / Challenging
- Development / Support

MSEK



*Methodology under review

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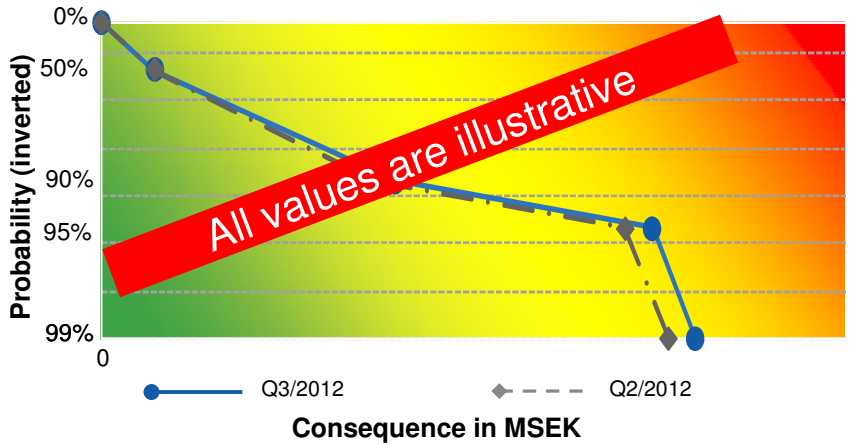
Fire in vital areas and systems
Forsmark - BU Nuclear Power

Enterprise Risk

- Reporting
- Analysis / Challenging
- Development / Support

The risk described as a cumulative probability distribution through scenarios at the confidence levels 50%, 90% & 99%



DESCRIPTION

Risk field: Technology

RISK RESPONSE

VALUE AT RISK

TVaR: XX MSEK (xx MSEK)
VaR: YY MSEK (yy MSEK)
Risk Level: ACCEPTED / NOT ACCEPTED

SCENARIOS TVaR

Scenario 50%:
Scenario 90%:
Scenario 99%:

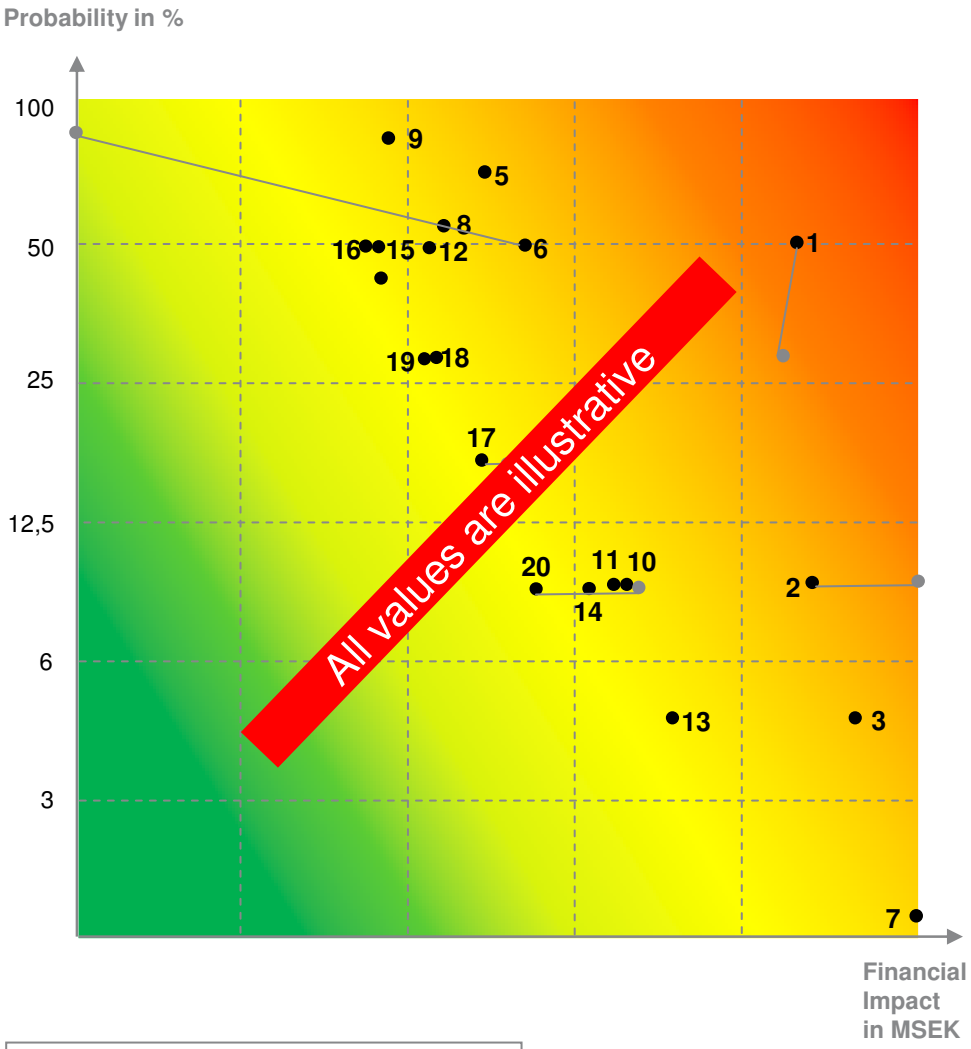
DEVELOPMENT

Comment Risk Level:

Top 20 Strategic Risks - Financial Impact

Enterprise Risk

- Reporting
- Analysis / Challenging
- Development / Support



● - Q3/2012; ● – Q1/2012; ⁄ - Change; ● - New risk
The Financial Scale bases on Group Level.

No.	Risk Name (Typical Year of Occurrence)
1	
2	
3	
4	
5	
6	
7	
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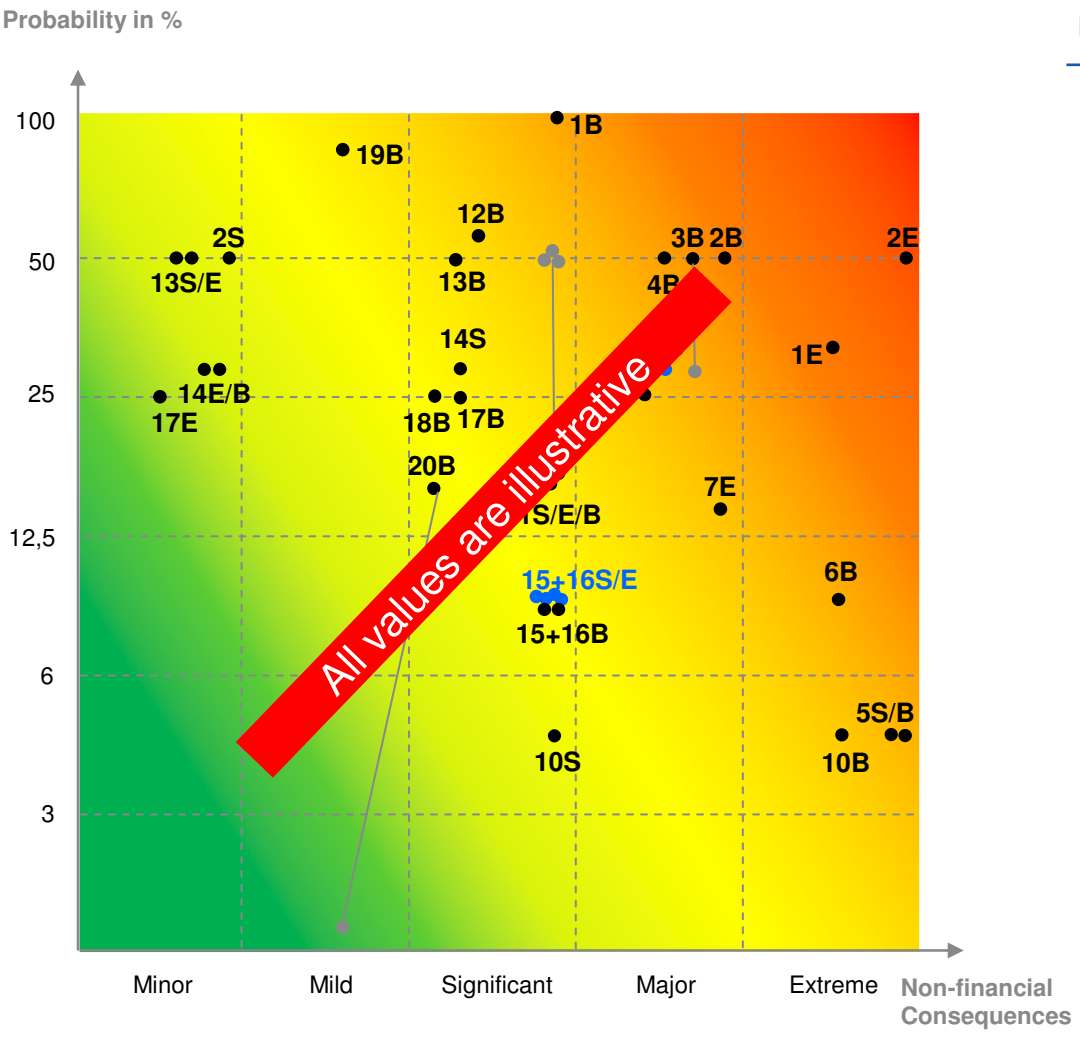
Top 20 Strategic Risks – Non-Financial Impac

Enterprise Risk

- Reporting
- Analysis / Challenging
- Development / Support



No.	Risk Name (Typical Year of Occurrence)
1	
2	
3	
4	
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18	
19	
20	

● - Q3/2012; ● – Q1/2012; ⁄ - Change; ● - New risk
The Financial Scale bases on Group Level.

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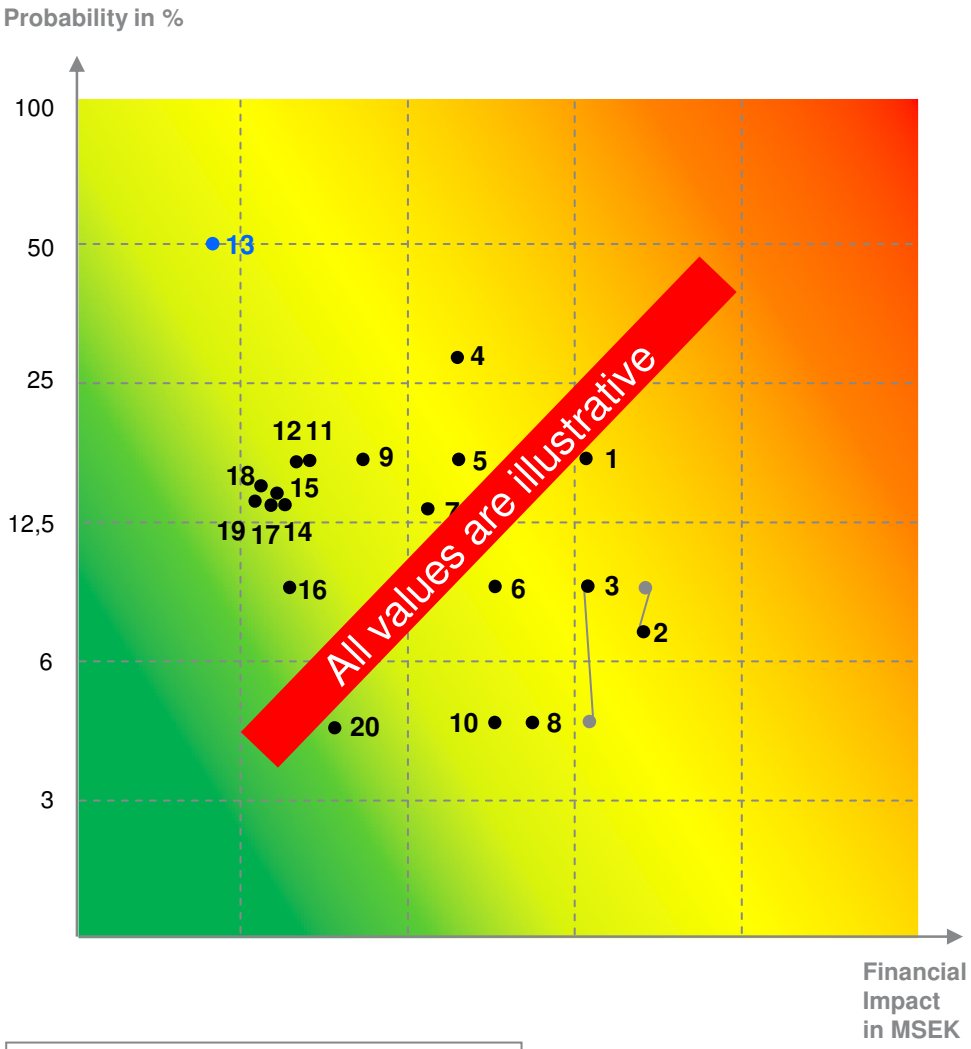
Top 20 Project Risks - Financial Impact

Enterprise Risk

- Reporting
- Analysis / Challenging
- Development / Support



● - Q3/2012; ● – Q2/2012; ⁄ - Change; ● - New risk
The Financial Scale bases on Group Level.

No.	Risk Name (Typical Year of Occurrence)
1	
2	
3	
4	
5	
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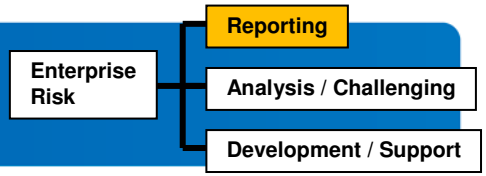
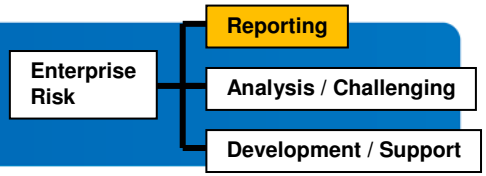
Extraordinary risks



- Explosion / fire at a plant / construction site,
- Major safety incident at a plant / construction site,
- Major environmental incident, e.g. release of hazardous substances into air, water, soil,
- Sabotage / Terrorism destroying a Vattenfall site,
- Major IT failure, e.g. resulting in lack of availability, loss of data or a data security breach,
- Dam failure resulting in flooding,
- Major supplier failure affecting available quantity, quality or the price,
- Change of regulation or denial of permits,
- Accidents by third parties affecting our operations,
- Nuclear accident,
- Severe downturn in political / social climate affecting our revenue or delaying projects,
- Unfavorable soil conditions increasing Capex / delaying projects.

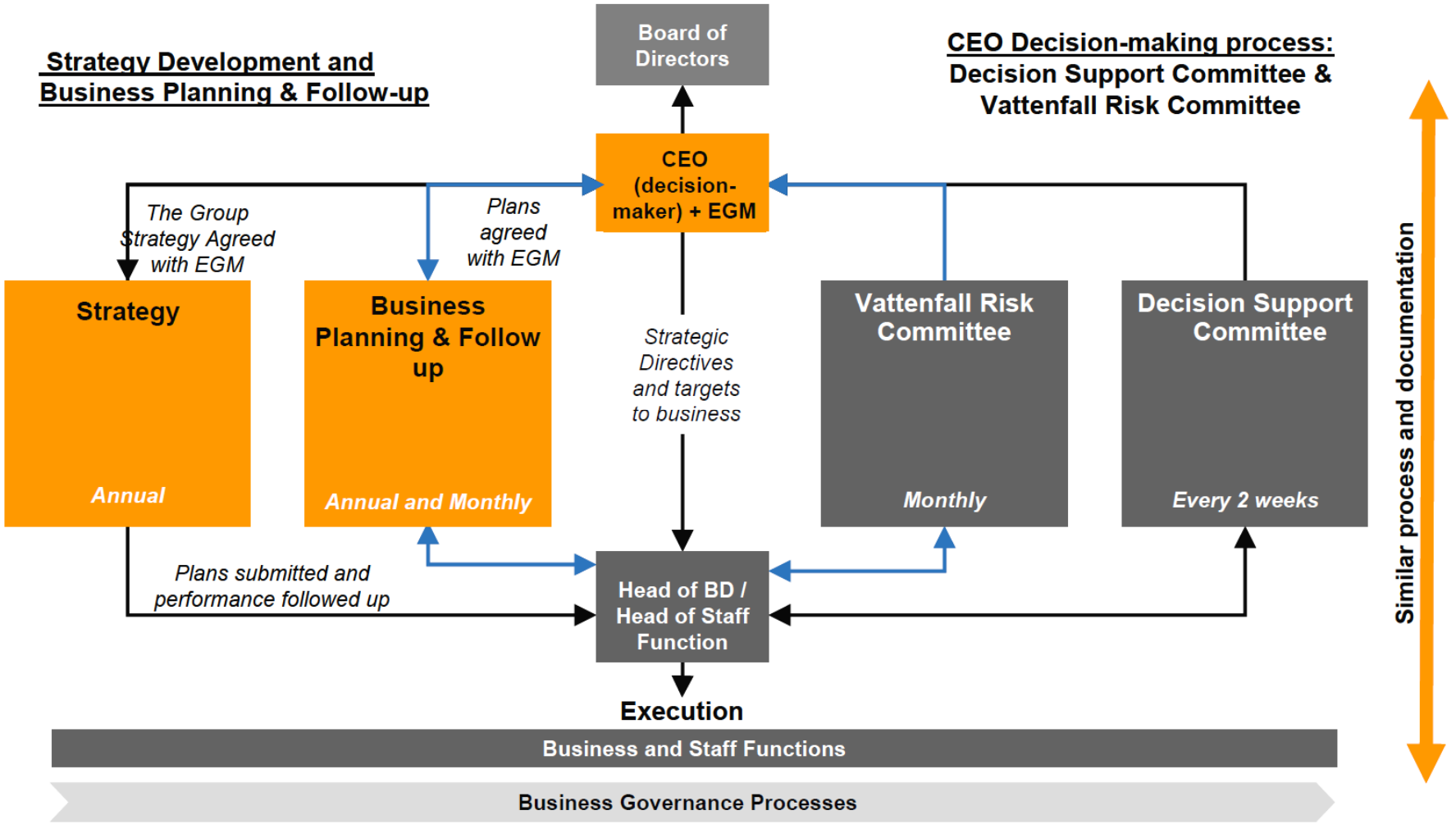
Event Log



Event Name	Real Financial Loss Amount in MSEK	Potential Financial Loss Amount in MSEK	Explanations
			Description: Event Location: Date of the Event: Risk Response:
			Description: Event Location: Date of the Event: Risk Response:

CEO Decision making process

Enterprise Risk
- Reporting
- Analysis / Challenging
- Development / Support



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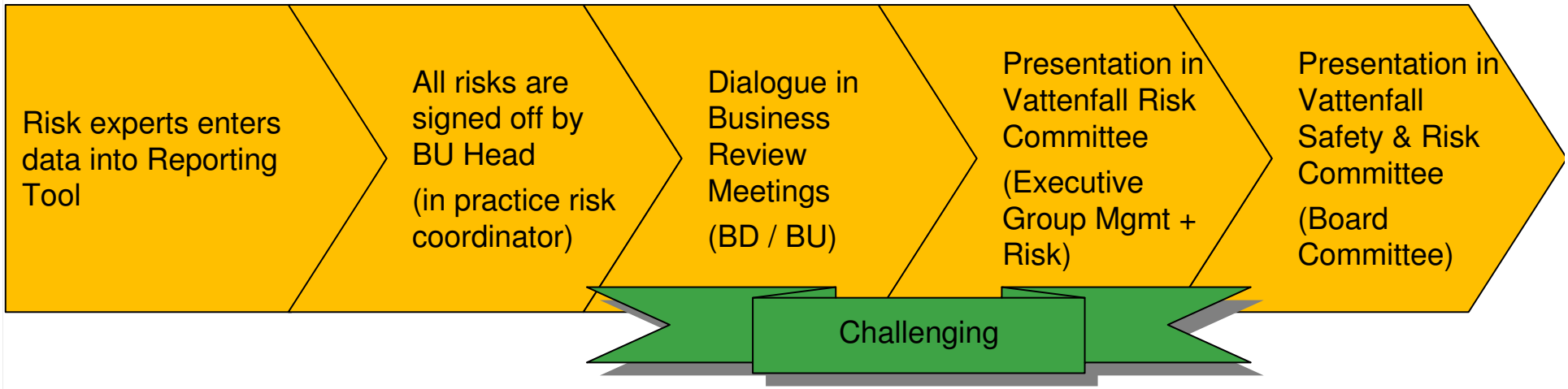
Risk Reporting Process

Enterprise Risk

- Reporting
- Analysis / Challenging
- Development / Support



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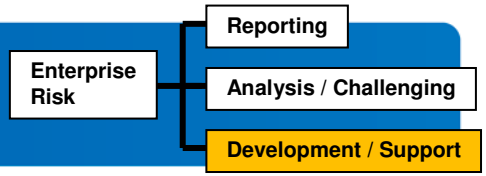
Development Themes



- Project Risk
  - Capex@Risk
  - Schedule@Risk
  - NPV@Risk
- KPI@Risk
- Non-financial Consequences

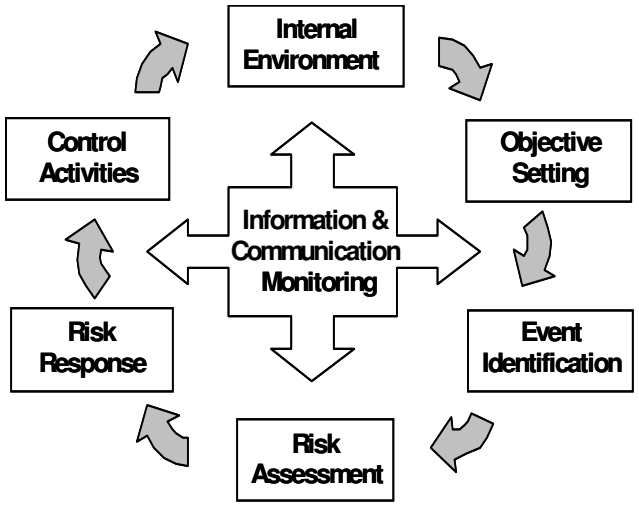
Enterprise Risk Management in Projects

Risk Management

Agenda

- **Background and Context**
- Triggers of Risk Management in Projects
- Cascading the Analysis
- Focus: Capex@Risk
- Project Portfolio Management
- Summary and Outlook

Enterprise Risk Management Model + Project Model



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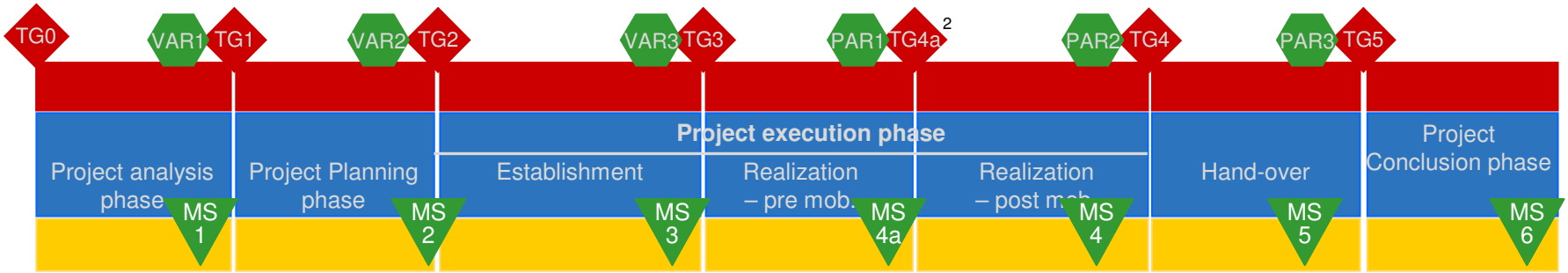

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The importance of projects in our sector

- Billions of investment are ahead of us
- Success of innovative technology is crucial
- Long lifetime makes most investments “strategic”
- High leverage (strategic fit, financials, quality)
- Fundamental decisions with little potential to adjust
- High public interest
- Complexity…

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Project Risk Management Framework

- A framework is needed that both attaches to the Enterprise Risk Management Framework as well as the Project Governance and decision model to avoid frictions
- PRMF shall be integrated to be a “daily tool” for the project manager as well as source of information on corporate level

Agenda

- Background and Context
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Uncertainty and risk

The business environment we operate in is complex and uncertain…

IT-infrastructure
Operational performance
Security
New technology
Stricter laws
Political influences
Governing authorities
Social trends
Changing market
Safety
Environmental demands
Financial challenges
Corporate culture
Business processes

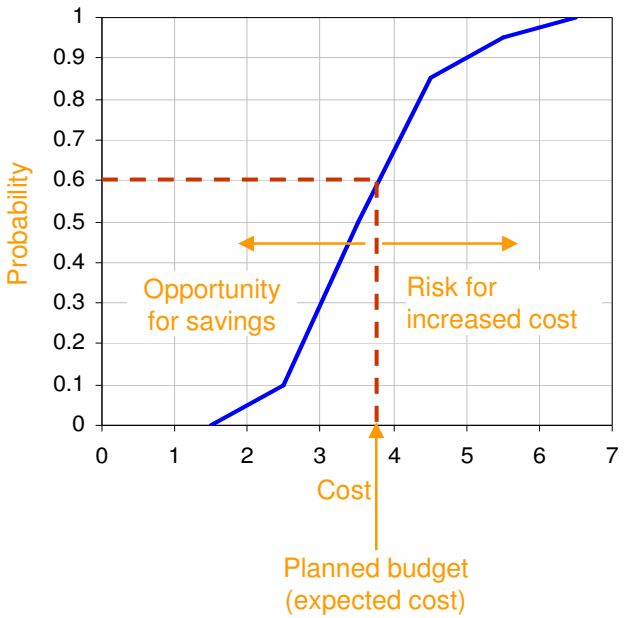
OPPORTUNITY !

Positive outcome of an event

Uncertainty*

Negative outcome of an event

RISK !



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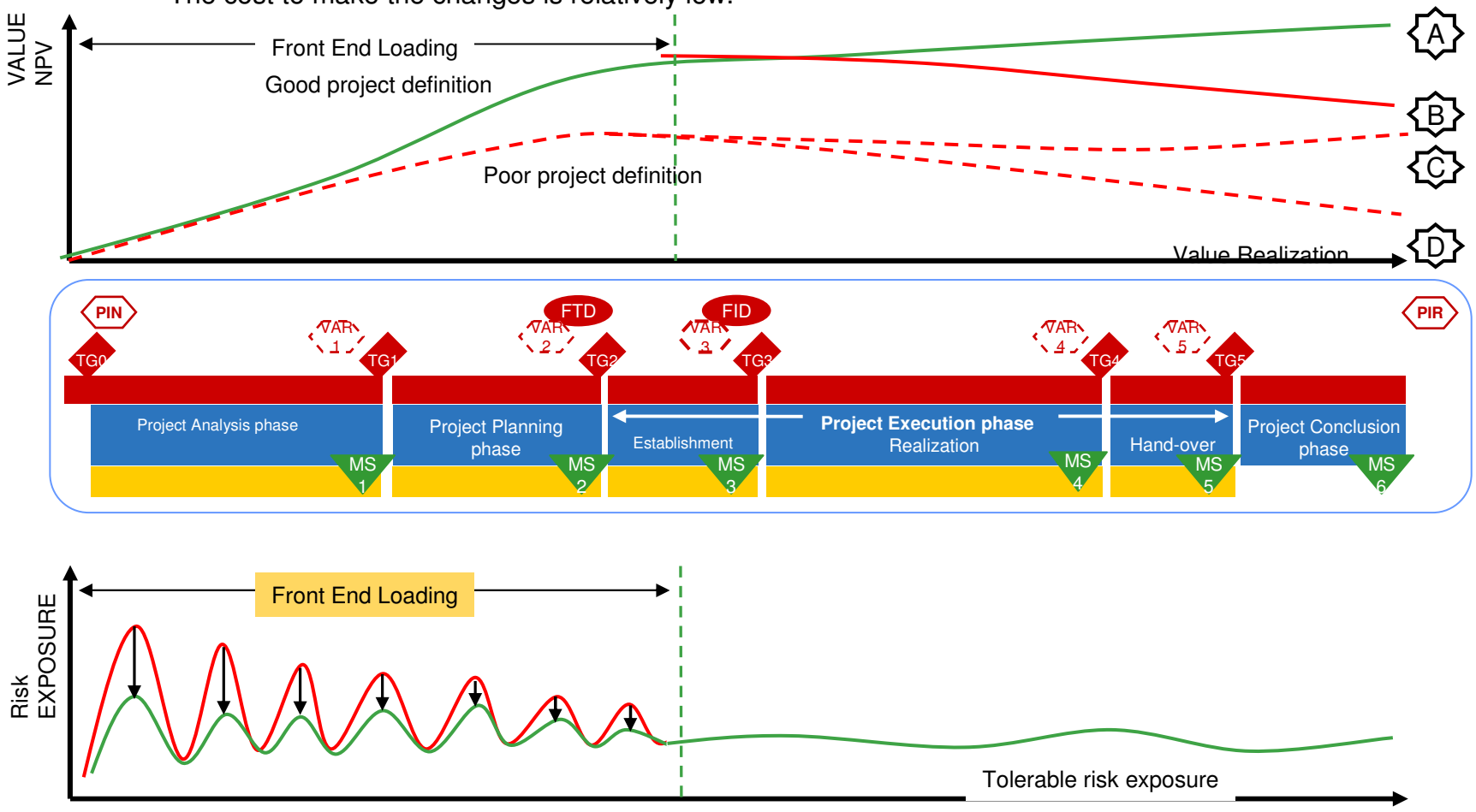
Front End Loading (FEL) – Controlling value and risk

- **Main Features:** Robust planning and design early in a project's lifecycle,
  - Ability to influence changes in design is relatively high
  - The cost to make the changes is relatively low.



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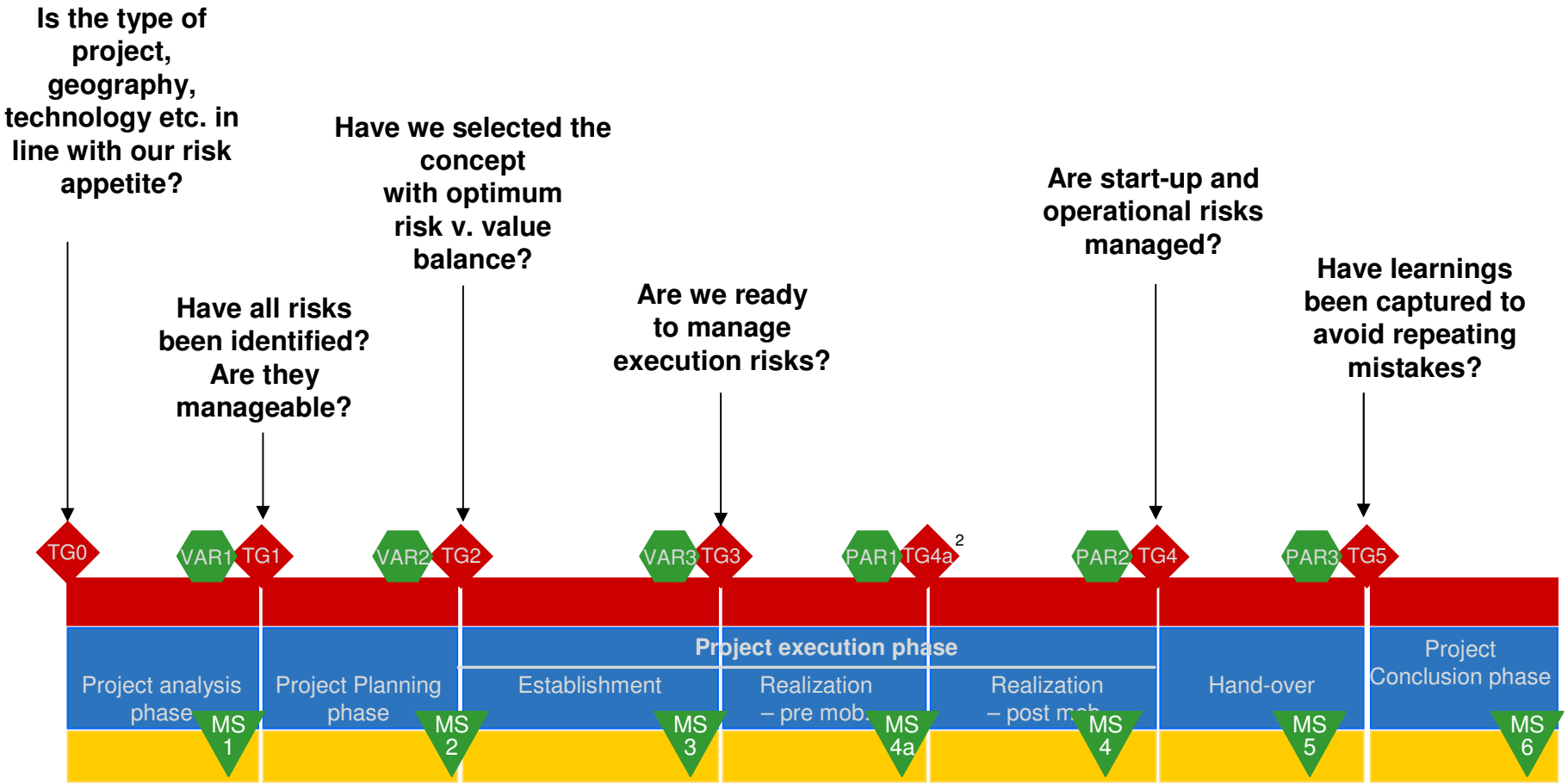
Risk main focus shifts during project lifecycle



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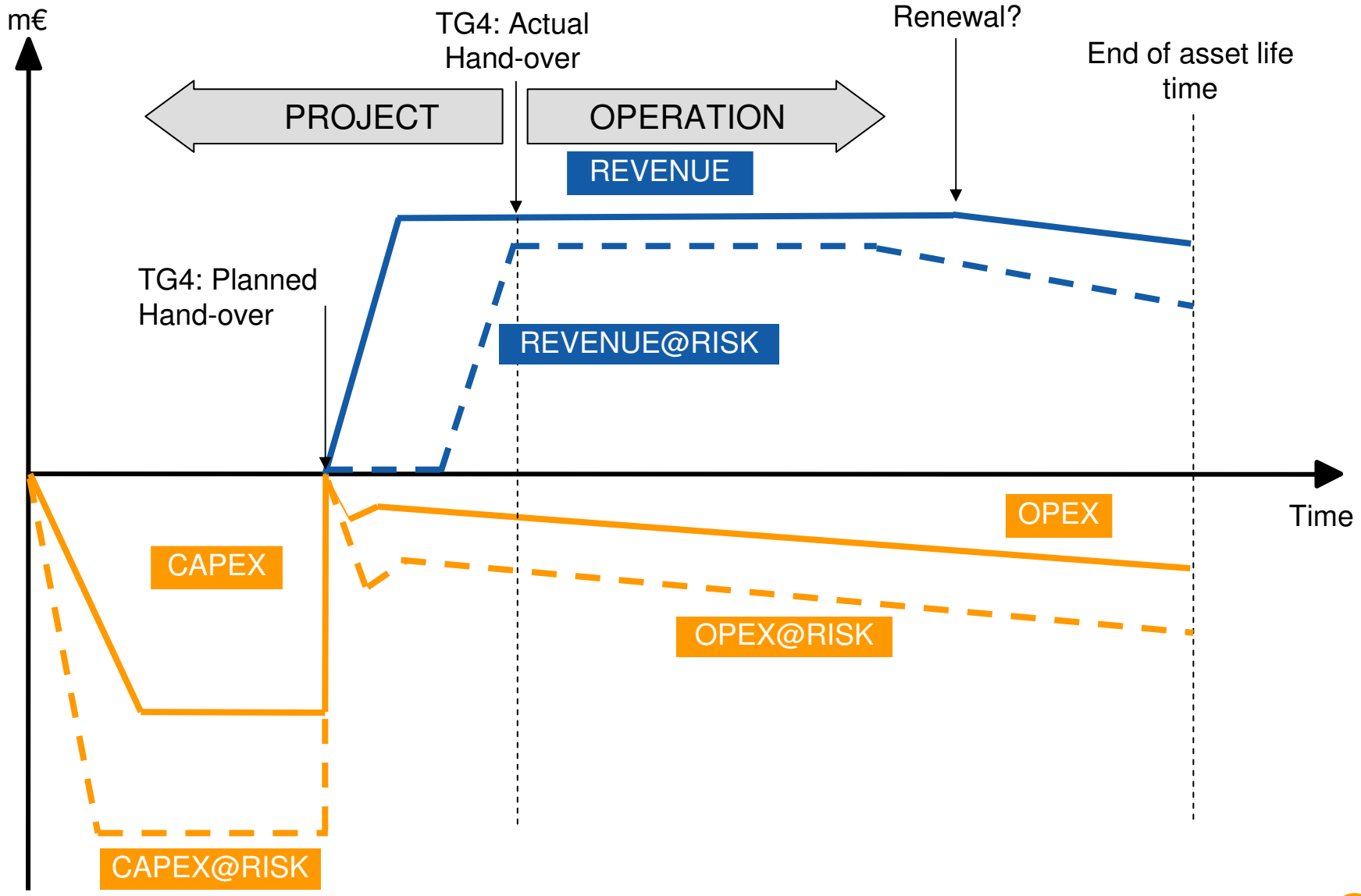
Risk main focus shifts during project & asset lifecycle



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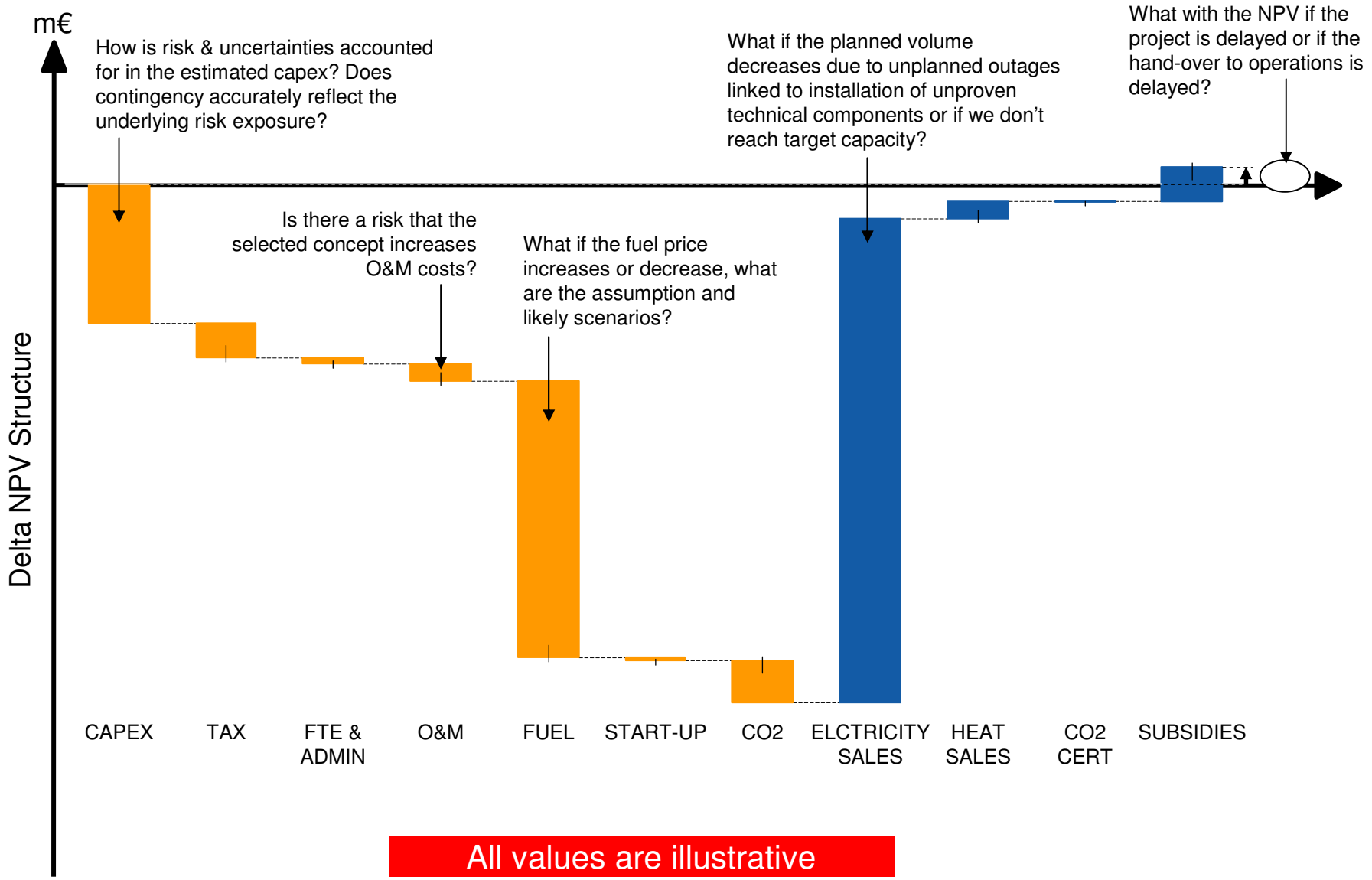
Risk main focus shifts during project & asset lifecycle



All values are illustrative

Three key risk metrics

Process	Risk Metrics	BENEFITS		
		Project	**Project Portfolio**	**Investment Planning**
Cost Estimation	Risk Adjusted Project Expenditures (CapEx @ Risk)	• Contingency that accurately reflects risk exposure • Improved ability to manage risk and uncertainty related to specific cost items • Risk respons strategy that focus on achieving planned project budget	• Possibility to opimize allocation of contingencies accross portfolios • Enable a view on the aggregated risk exposure e.g towards a contractor or market segment • Improved ability categorize, evaluate & select project based on underlying risks in capex	• Improved ability to follow-up contingencies & risk for increased capex spend, enable proactivity with respect to Group capex limit • Possibility to optimize capital allocation & capture opportunities • Avoid sub-optimization of capex spend & cash-flow planning
Project Planning	Risk Adjusted Schedule (Schedule @ Risk)	• Methodology to analyse delayes of individual activites and there aggregated effect on CoD/TG • Possibility to assess the impact on NPV from delays (calculation period), i.e. more robust BC • Risk respons strategy that focus on specific risks giving delays	• Methodology to evaluate the aggregated effects of delays on the value in the project portfolio • Input to resources optimisation in the portfolio, e.g. back-up plans and relocation of resources • Improved ability to steer & follow-up actions to mitigate delays	• One approach for assessment and reporting of contingencies • Avoid sub-optimization of capex & cash-flow • Possibility to optimize capital allocation & capture opportunities • Input to BU investment project portfolio dialogue
Valuation	Risk Adjusted Net Present Value (NPV @ Risk)	• Methodology to analyse how risk and uncertainty in indivual items in the business case effect value • Possibility to optimize delivered value by risk respons strategies targeting major risk drivers to the planned value	• Portfolio view of key risk drivers and their aggregated impact on value • Possibility to maximize portfolio value based on the aggregated risk exposure and effectiveness of risk respons strategies • Improved ability to categorize, evaluate & select project based on underlying risks in value	• Possibility to rank investment projects based on value including the effect of underlying risks • Possibility to get a balanced ranking based on planned capex, value and associated risk exposure

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Agenda

- Background and Context
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Qualitative assessment of project risk: Project Risk Profile

Risk fields	Summary	Actual (1-5)	Target (1-5)	Actions
Technology	Only little operational experience with one single installation available	4	3	Action plan of technology risks in risk register
Infrastructure	Gas and power connections are already available.	1	2	None
Politics & Society	National and regional stakeholders are supporting the project, but local opposition is possible	3	1	Engage local stakeholders as per stakeholder engagement plan dated xx/xx/xxxx
Law & Regulation	Project is fully permitted. Slight uncertainty wrt future NOx emission limits.	2	2	None
Personnel & Organisation	Interfaces between main and subcontractors is well defined	2	2	None
Market & Financial	Uncertain market outlook and possible introduction of capacity fees.	4	3	Monitor and make case for role in portfolio valuation

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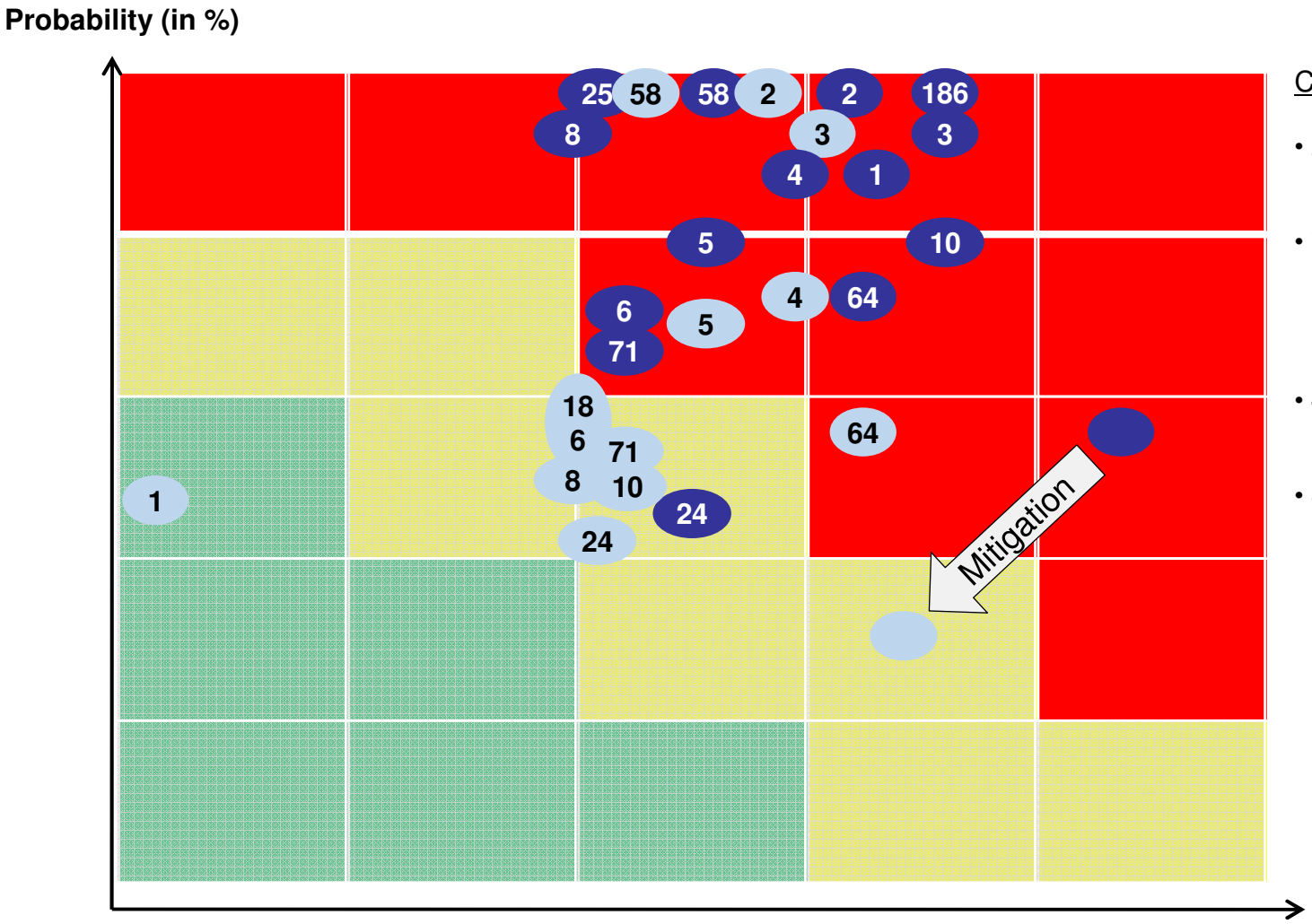
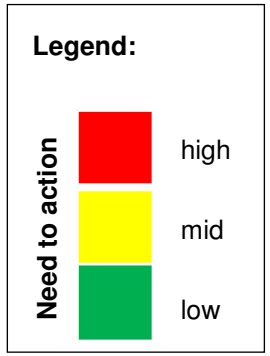
Risk Map



Content of Risk Register

- 201 risks in total (financial & HSE)
- 78 financial risks
  - 62 CAPEX (thereof 14 TOP)
  - 16 non-CAPEX
- 41 non-financial risks (pure HSE)
- 82 closed



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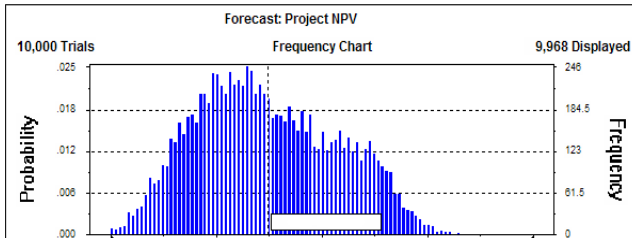
Quantification with distributions

Cost item	Cost (€m)	Estimation accuracy	Neg. variation	Positive variation	Dependencies	Comment
EPC price	200	High	-5	20	Contract	
Initial spares	13	High	-2	5	Quote / findings	
Connections	12	Medium	-2	2	TSO	
Land and facilities	2	Low	0	0	-	
Owners cost	13	Low	-3	8	Assumptions	
Escalation	2	n/a				
Contingency				**23**		
Total cost budget	**265**			**288**		

(*)

(*) Contingency calculation to be performed using Monte-Carlo Method, based on individual distributions of cost items



Capex distribution

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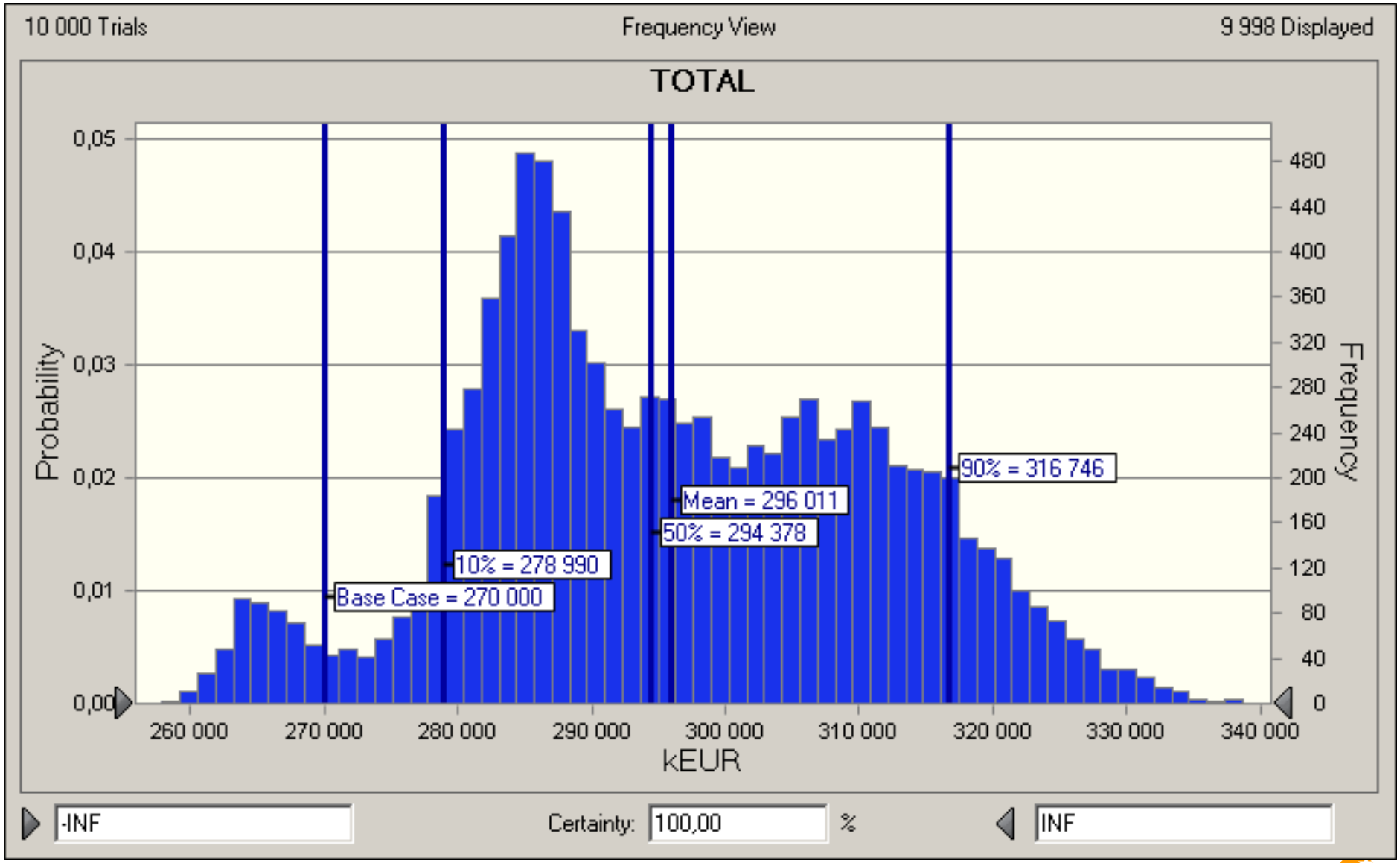
Modelling in Crystal Ball - Distribution



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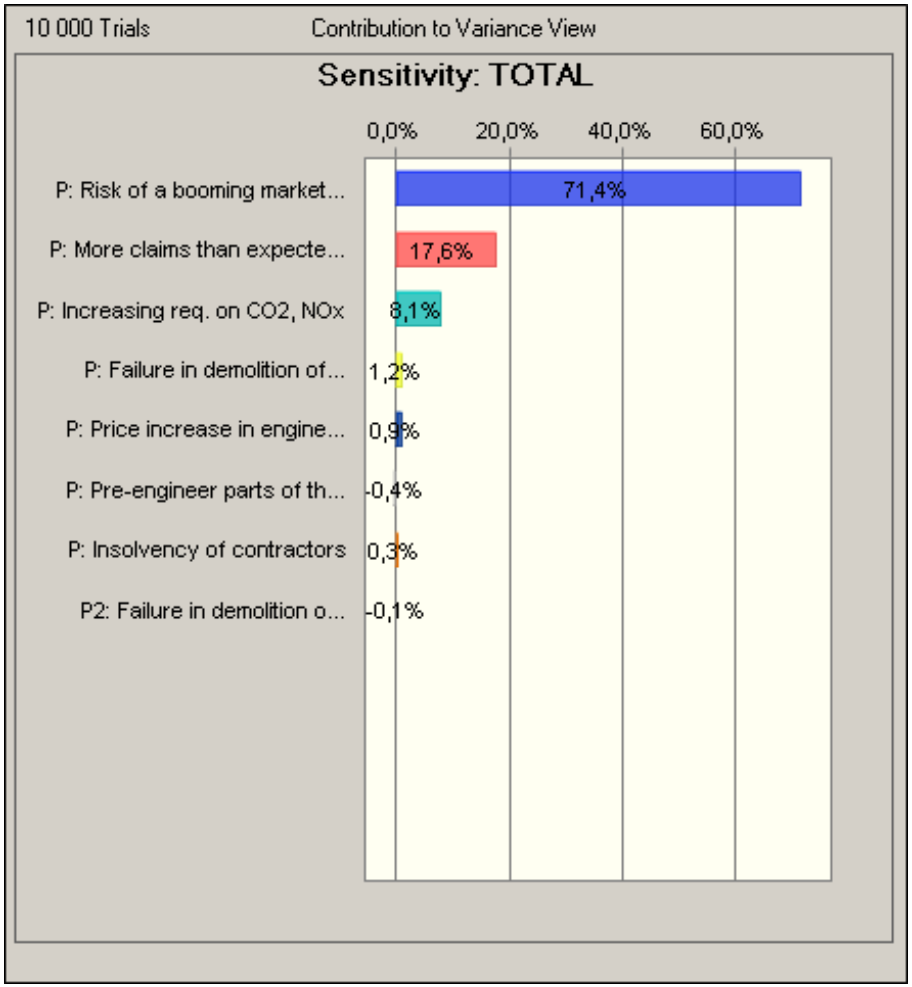
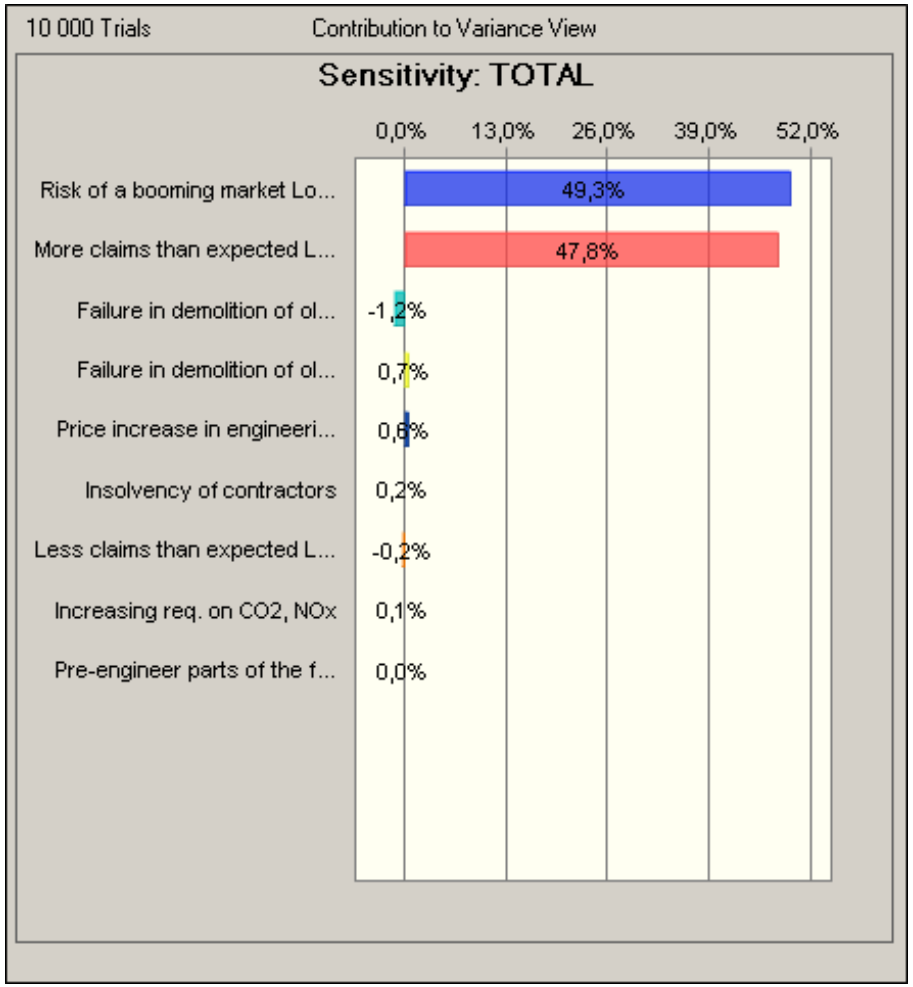
Modelling in Crystal Ball – Sensitivity Analysis





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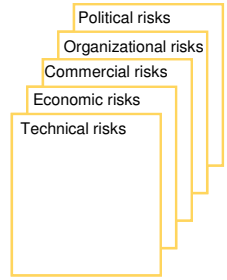
Overview of integral project risk management approach

Step 1: Risk Identification

Risk identification & appraisal

Project organization identifies risks assisted by risk experts

Project Risk Register



Experience database

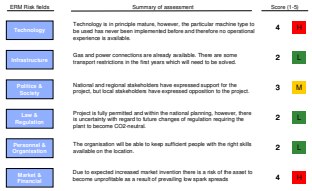
Project assumptions and data book

Step 2: Qualitative risk assessment (risk profiling)

Risk profiling

Create project risk profile by assessing risks using past experience

Project risk profile

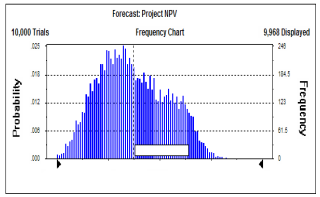


Step 3: Quantitative risk assessment

Risk quantification & modeling

Quantification of risks based on historical learning's and global experience and inclusion in business case

Risk–adjusted business case

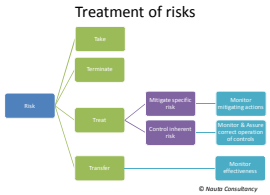


Step 4: Response & Optimize

Risk mitigation

Project organization will treat and mitigate risks

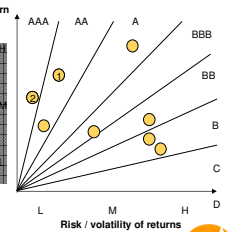
Project-specific risk mitigation strategies



Optimization

Project organization will minimize risk and optimize risk/return relation

Maximised value and optimised risk/return



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Requirements vary depending on size and complexity

Estimated total project expenditure * \ Risk	No new technological uncertainties *And* No new kind of business *And* Part of core market *And* Limited impact in case of worst case scenario	New technological uncertainties *Or* At the edge of approved Vattenfall business strategy in terms of core markets and kind of business *And* Limited or medium impact in case of worst case scenario	New technological challenges *Or* New market *Or* New business *Or* High impact in a worst case scenario
<	Basic	Basic	Standard
≥	Basic	Standard	Standard
≥	Standard	Standard	Extended
≥	Standard	Extended	Extended
≥	Extended	Extended	Extended

All values are illustrative

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Agenda

- Background and Context
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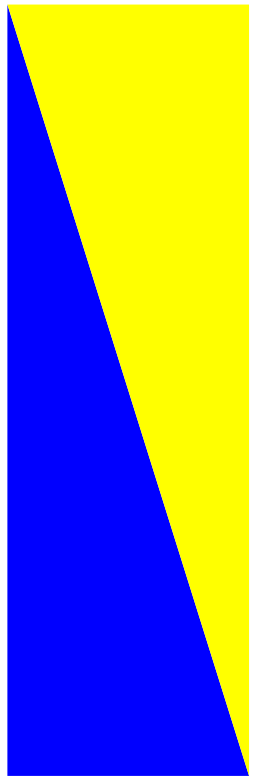
Why start with focusing on CAPEX@Risk

- Direct impact on project NPV
- Early activity in project planning and execution
- Usually models that are good to handle
- Budget has high management attention
- Optimized use of budgets offers direct opportunities

Distribution of work – cooperation secures success

- Basic (deterministic) calculation model available
- Workshop gathering know-how on uncertainty / possible deviations
- Pragmatic approach to probability distributions
- Monte-Carlo-Simulation with Crystal Ball



Risk Management

Project

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Agenda

- Background and Context
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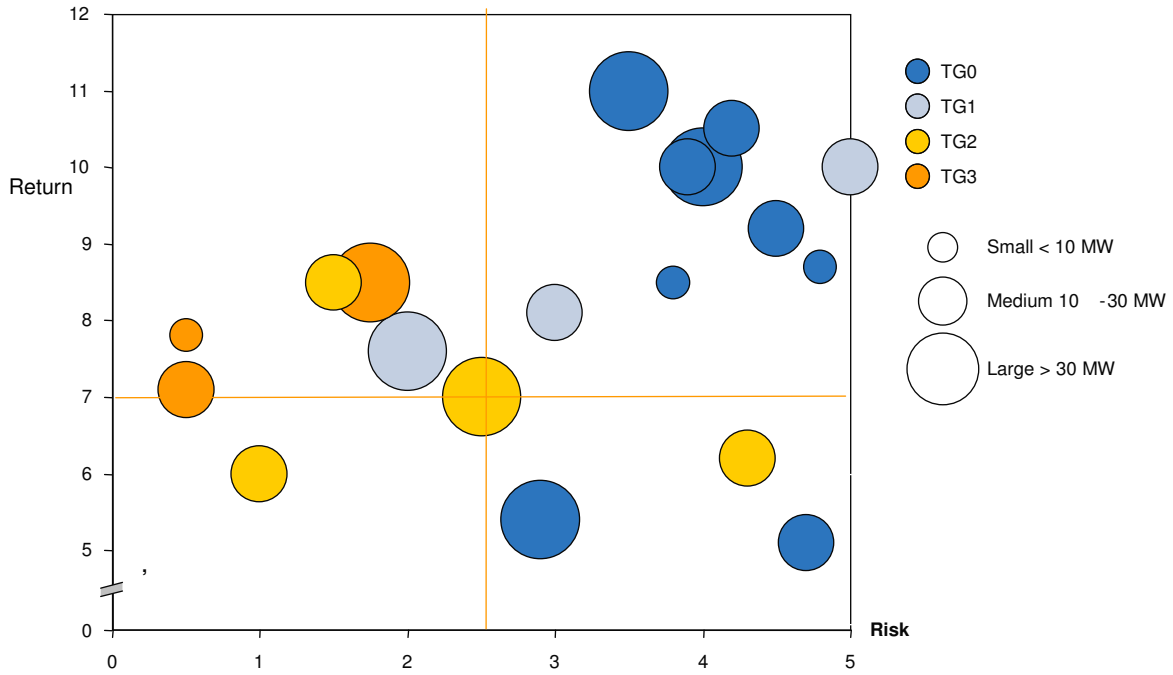
Project & Portfolio Management

- Show project pipeline in risk/return dimension, (see example below)
- Enhance decisions, better comparability through uniform approach

Portfolio ranking based on development risk and financial performance

Example



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Agenda

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Success factors and obstacles

- Step by step implementation
- Actively involve the decision making bodies
- Cooperation with the project and support by central Risk Management (workshops, trainings)

- Catch 22: „As long as you cannot prove it‘s worth the effort, nobody wants to provide the resources“
- In some cases the complexity of the model is really challenging

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