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ENERGY EXPERTISE
& DIGITAL SOLUTIONS

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PLAN



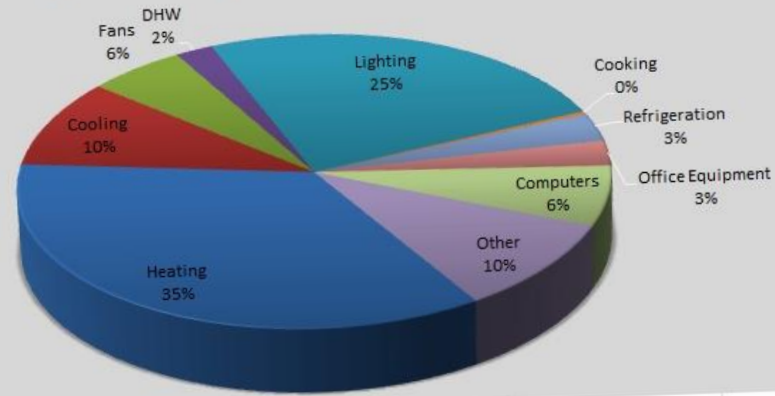
OPERATE



SETTLE

Heating Source:	Natural Gas
Building Type:	Office
Building Area:	200,000 sq ft
Energy Utilization Index (EUI)	
per ECM (kBtu/sf/yr)	69.7
Estimated Energy use	
per ECM (kBtu/yr)	13,935,000
Estimated Energy use	
per ECM (kWh/yr)	4,082,918

Typical Energy Consumption by End Use



End Use	Energy Utilization Index (kBtu/ft ² /yr)	% of Total Use	Total Electric (kWh/year)	Total Gas (therms/year)	Estimated Total Cost (dollars/year)
Heating	24.6	35.3%	-	49,200	\$ 49,200
Cooling	6.7	9.6%	391,151	-	\$ 39,115
Fans	3.9	5.6%	228,538	-	\$ 22,854
DHW	1.5	2.2%	-	3,000	\$ 3,000
Lighting	17.3	24.9%	1,015,236	-	\$ 101,524
Cooking	0.2	0.3%	-	450	\$ 450
Refrigeration	2.2	3.1%	127,454	-	\$ 12,745
Office Equipment	2.0	2.8%	114,269	-	\$ 11,427
Computers	4.6	6.6%	268,093	-	\$ 26,809
Other	6.8	9.7%	395,546	-	\$ 39,555
	69.7		2,540,287	52,650	\$ 306,679

Energy Conservation Measures			Estimated % Savings	Estimated Electric Savings (kWh/year)	Estimated Gas Savings (therms/year)	Estimated Cost Savings (dollars/year)
ECM A	ECM B	ECM C				
Condensing Boilers	-	-	15%	-	7,380	\$ 8,115
-	-	-	0%	-	-	\$ -
-	-	-	0%	-	-	\$ -
-	-	-	0%	-	-	\$ -
LED	-	-	35%	355,333	-	\$ 35,533
-	-	-	0%	-	-	\$ -
-	-	-	0%	-	-	\$ -
-	-	-	0%	-	-	\$ -
-	-	-	0%	-	-	\$ -
-	-	-	0%	-	-	\$ -
				355,333	7,380	\$ 43,648
				14%	14%	

Samenwerking

2015	CDS/marktprocessen
2016	Dynamiek elektriciteitsmarkt
2017	Meer connectiviteit & inzicht: forecasts, pieken, kostenallocatie
2018	Intraday en day-ahead optimalisatie
2019	Fatale stoom en settlementprocessen



The Chemical Company

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Verbund Site BASF Antwerpen

Kic-MPi

Frederic Viaene
Head of Utility Management



BASF in Antwerp



6

km²



3.277

employees



ca. 6,5

billion euro



50

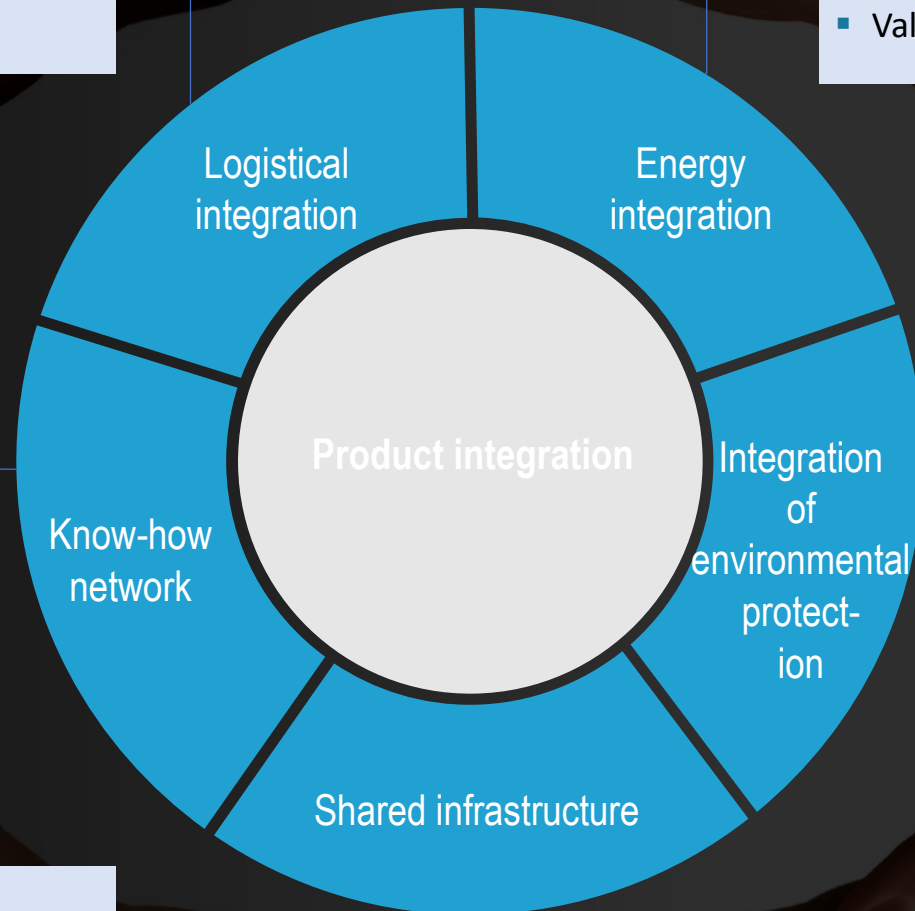
plants

VERBUND

MORE THAN PRODUCT INTEGRATION

- Modal split optimization
- Efficient onsite logistics

- World class energy efficiency
- Valorization of by products



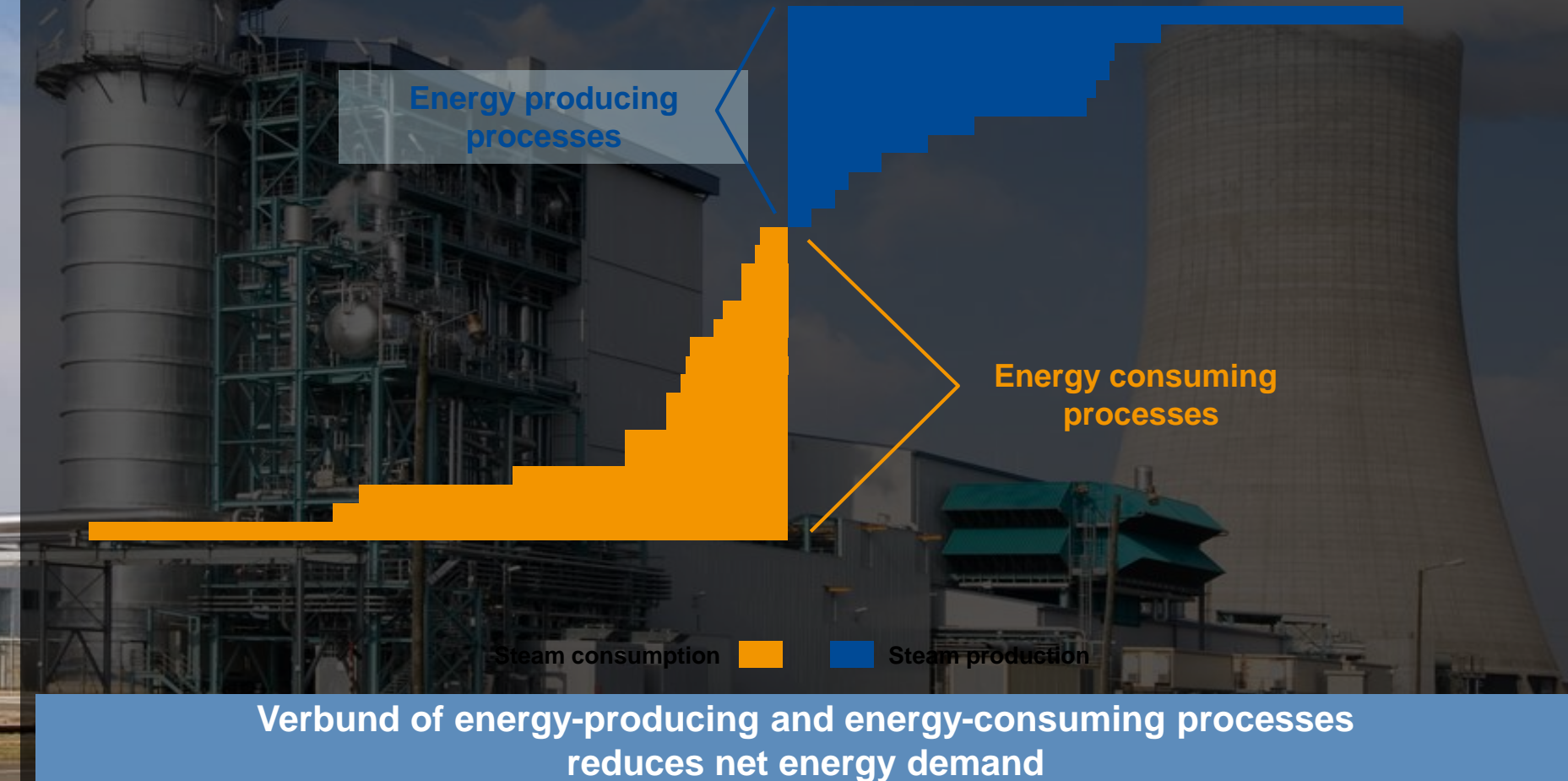
- Highly skilled local expertise
- Critical mass
- Access to Group competence centers

- Impact decoupled from growth
- Excellent stakeholder management

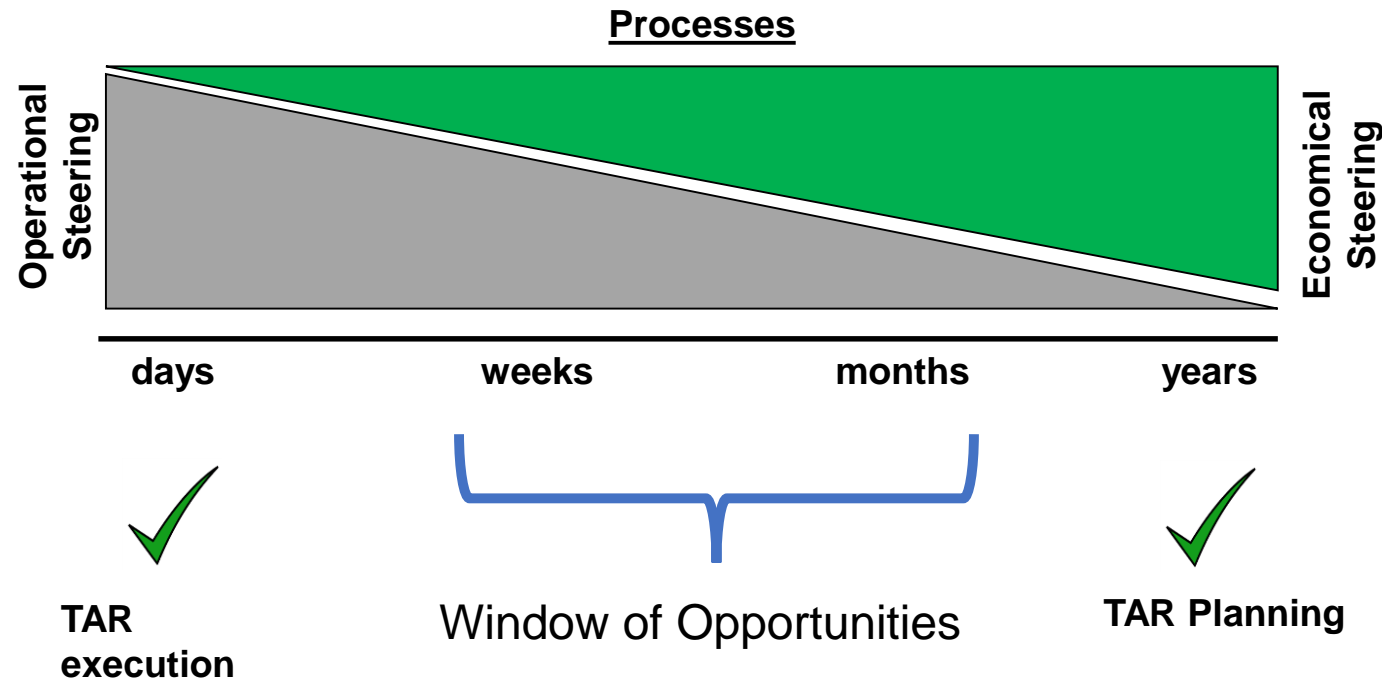
- State of the art
- High reliability (multi sourcing)

VERBUND

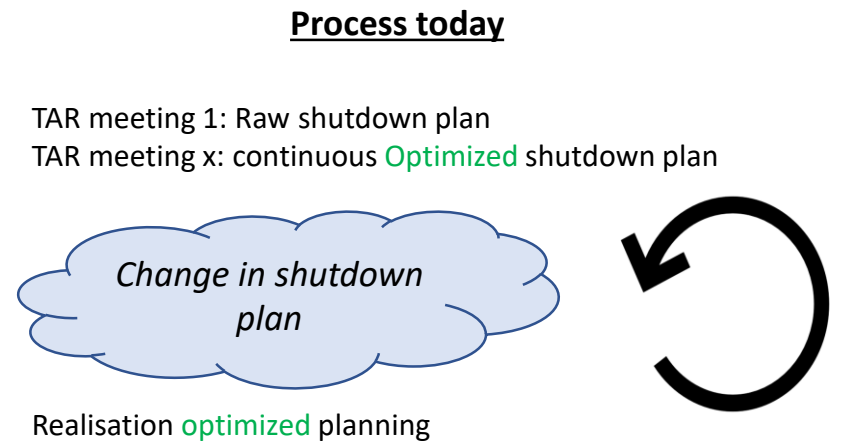
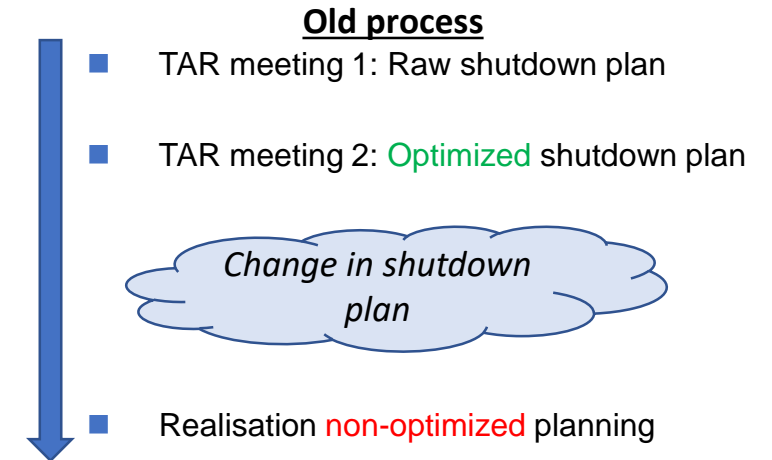
ENERGY AND ENVIRONMENTAL INTEGRATION



Increased data transparency and simulation power allows a more dynamic way of optimization



➔ Moving from a static verbund optimization to a dynamic planning



Real life example from TAR scheduling

Reduction in CO2 emissions



improved data transparency and availability in UMS allowed for better energy management