



Impulses

to load shedding - de-coupling of power peaks
A typical Network Usage

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Content

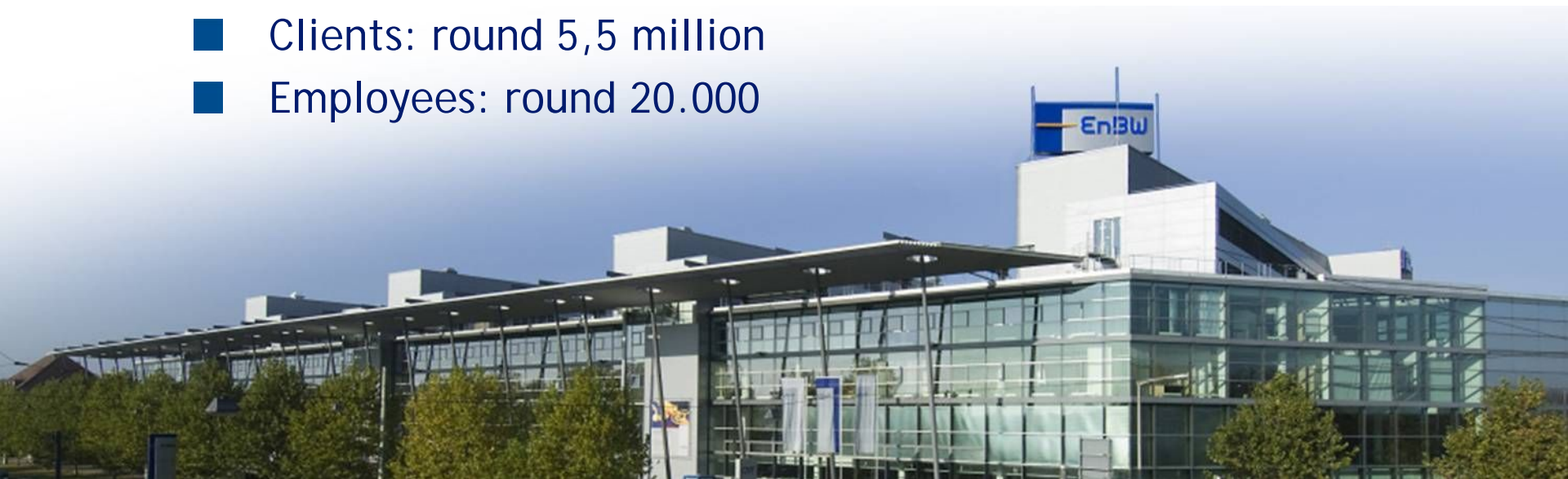
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Short Profile

EnBW Energie Baden-Württemberg AG



- One of the biggest energy providers in Germany and Europe
 - Business sectors: power generation and trade, power grid and sales, gas, energy and environmental services
 - Annual turnover 2012: over 19 billion Euro
 - Clients: round 5,5 million
 - Employees: round 20.000



Kurzporträt EnBW Energie Baden-Württemberg AG



- Power generation and trade
 - 12.653 MW installed capacity (thereof 1.059 MW EE*)
 - 51,744 TWh generation (thereof 6,344 TWh EE)
- Power grid and sales
 - 51,1 TWh power sales (B2B** und B2C***)
 - 155.000 km power supply system
- Gas
 - 67,7 TWh gas sales (B2B und B2C)
 - 16.000 km gas supply system
- Energy and environmental services
 - 1,3 m tons waste thermal disposal capacity
 - 90,3 m m³ water **disposal/sales (Wasserabsatz)**



* Renewable energy ** business-to-business *** business-to-consumer

Load Optimisation - Opportunity to reduce the grid fees

■ Goal:

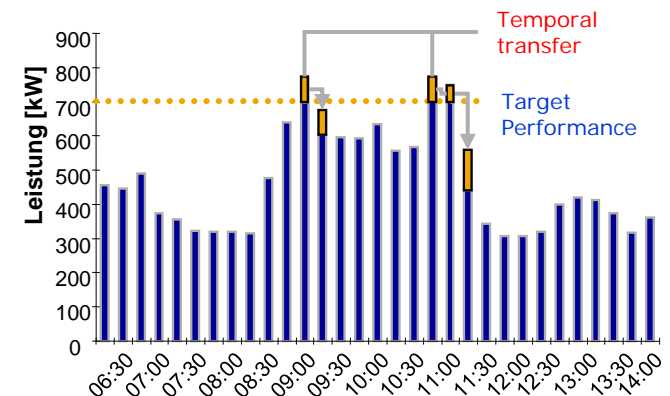
- Maximum power reduction without production restrictions
- Increase of user hours through harmonisation of the service/performance relation ??? **Leistungsbezuges**
- Contribution to power grid stabilisation („Intelligent Grids“)
- Reduction of the grid fees
 - Make use of exemption clauses
 - Special forms of network usage

Atypical Network Usage



Bundesnetzagentur

The Federal Network Agency (FNA) in Germany is responsible for competition in the five network markets: electricity, gas, telecommunications, post and the railway. As the highest German regulatory authority the FNA maintains and promotes competition in these sectors.



A typical Grid Usage according to § 19 Current Network Tariff Regulation



- Special tariffs for atypical network usage
 - In accordance with § 19 Section 2 Sentence 1 of the current network tariff regulation (Power Generation) network clients with atypical consumption behaviour can apply for a special tariff for use of the network.
 - Atypical consumption behaviour occurs when the times of peak energy relation (maximum load) of a network customer is outside the published peak load time frame of the network operator (period of maximum network load).

"If it is clear on the basis of existing or forecast consumption data, or due to technical or contractual conditions obvious that the maximum load contribution of a final consumer will deviate significantly from comparable annual peak load of all removals from this network or substation, so operators of electricity networks have to offer this end user in deviation from § 16 an individual network user tariff, which is in accordance with the specific atypical usage patterns of network customers. "

§ 19 paragraph 2 sentence 1 StromNEV

A typical Network Usage according to § 19 StromNEV

- The areas of high load time frame is calculated by determining and using "the proper identification of individual network tariffs in accordance with § 19 Section 2 Sentence 1 StromNEV" from 05.12.2012.
 - Each network operator determines the applicable rules to its individual network time frame.
 - The areas of high load time frames are identified for the four seasons and for each network and substation.
 - Relevant in each case is the network or substation which the final consumer draws electrical energy from.

The current network tariff regulation (Power Generation) is a German regulation on fees for access to electricity supply systems and controls in the liberalized energy market to determine the network usage charges for the transit of electricity through the networks of electricity network operators to the consumers.

High Load Time Frame according to § 19 Abs. 2 Satz 1 StromNEV

- Power system operators are to publish the high load frame for the various voltage levels and seasons on its website.

- Seasons:

- Spring 01.03. - 31.05.
- Summer 01.06. - 31.08.
- Autumn 01.09. - 30.11.
- Winter 01.12. - 28/29.02.



- "The high-load time frames are valid only on weekdays. Weekends, holidays, as well as bank holidays and the time between Christmas and New Year are considered off-peak times since the onset of concurrent annual peak loads are not expected to happen on these days."

Definition High Load Time Frames as per guidelines of the Bundesnetzagentur (BNetzA)

High Load Time Frames of the Network Operators

■ High Load Time Frames for 2014 of the Netze BW GmbH



based on the load profile data September 2012 to August 2013

Removal level	Winter Jan., Feb., Dez.	Spring Mrz.-Mai	Summer Jun.-Aug.	Autumn Sep.-Nov.
High voltage networks	09:30 - 13:45 16:30 - 19:15	Not Applicable	N/A	17:00 - 18:00
Transformation to medium voltage	10:00 - 10:15 12:00 - 12:15 16:45 - 20:00	N/A	N/A	N/A
Medium voltage networks	09:30 - 10:45 12:15 - 16:15 17:45 - 21:45	N/A	N/A	N/A
Transformation to low voltage	18:15 - 22:30 23:00 - 23:45	N/A	N/A	N/A
Medium voltage networks	18:15 - 22:30 23:00 - 23:45	N/A	N/A	N/A

Saturdays, Sundays and statutory public holidays in Baden-Württemberg, including window days and the period between Xmas and New Year are exempt of high load time / are not subject to high load time at all.

High Load Time Frame of the Network Operators

■ High Load Time Frame for 2014 of the Bayernwerk AG

Network Level	Season	Period
High Voltage/Medium Voltage	Spring	16:15:00 - 19:14:59 16:30:00 - 19:29:59
	Summer	
	Autumn	
	Winter	
Medium Voltage	Spring	16:30:00 - 19:29:59
	Summer	
	Autumn	
	Winter	
Medium Voltage / Low Voltage	Spring	16:30:00 - 19:44:59
	Summer	
	Autumn	
	Winter	
Low Voltage	Spring	16:30:00 - 19:44:59
	Summer	
	Autumn	
	Winter	

High load time frames are applied on work with exception to Saturdays, the window days on , 2nd May 2014, 30th May 2014 and 20th June 2014 and the work days between 24.12.2014 and 31.12.2014. These apply to the statutory holidays in München.

Criteria for the claim of Special Tariffs

Criteria	Explanation
Application deadline	Application must be filed no later than 30.09. of the proposed calendar year.
Quantity of electricity at consumption point	Power price reduction only occurs if the real power reduction has occurred during high-load periods per license year
Consumption point	When all related electrical facilities/installations of the business are on the company's premises (electrically connected) and are connected via one or more consumption points to the operator's network.
Calculation of individual tariff	Price x highest capacity in the high-load time frames + network work price x annual work <u>Condition:</u> Individual network charge less 20% of the normal network tariff Save at least 500 EUR a minimum limit
Relevant threshold	Individual peak load during the peak load time frame must, depending on the voltage level, be considerably lower than the year's peak level: EHV: 5%, EHV / HV: 5%, HS: 10%, HS / MS: 20%, MS: 20%, MV / LV: 30%, NS: 30%

Criteria for the claim of Special Tariffs

Documentation for 2014 of atypical network usage

- Peak times for the coming year are to be published by the network operator by October 31
 - Maximum reduction of up to 80% of the network tariff possible
 - Thresholds of power values in and out of peak times:
 - percentage: for example, MV and HV / MV at least 20% and absolute lowest 100 kW
 - Minimum limit remains at 500 EUR
 - As of 2014, there will be no approval process, but a notification method
 - In the event of a two year **non fulfillment** the (controlling) authorities have the right to investigate and reject the agreement.
- Bei eine zweijährige Nichterfüllung behält sich die Regulierungsbehörde vor eine Untersagung der Vereinbarung zu prüfen**
- When the preconditions are no longer met, then billing will be according to general network tariffs.

Equalisation Load Profile Industrial Business with High Load Time Frame

- Customer example
 - Meat manufacturer
 - approx. 13 GWh/year energy procurement
 - In network are of the E.DIS AG for transformation HV/MV
 - approx. 40% of the electrical energy is required for cooling.

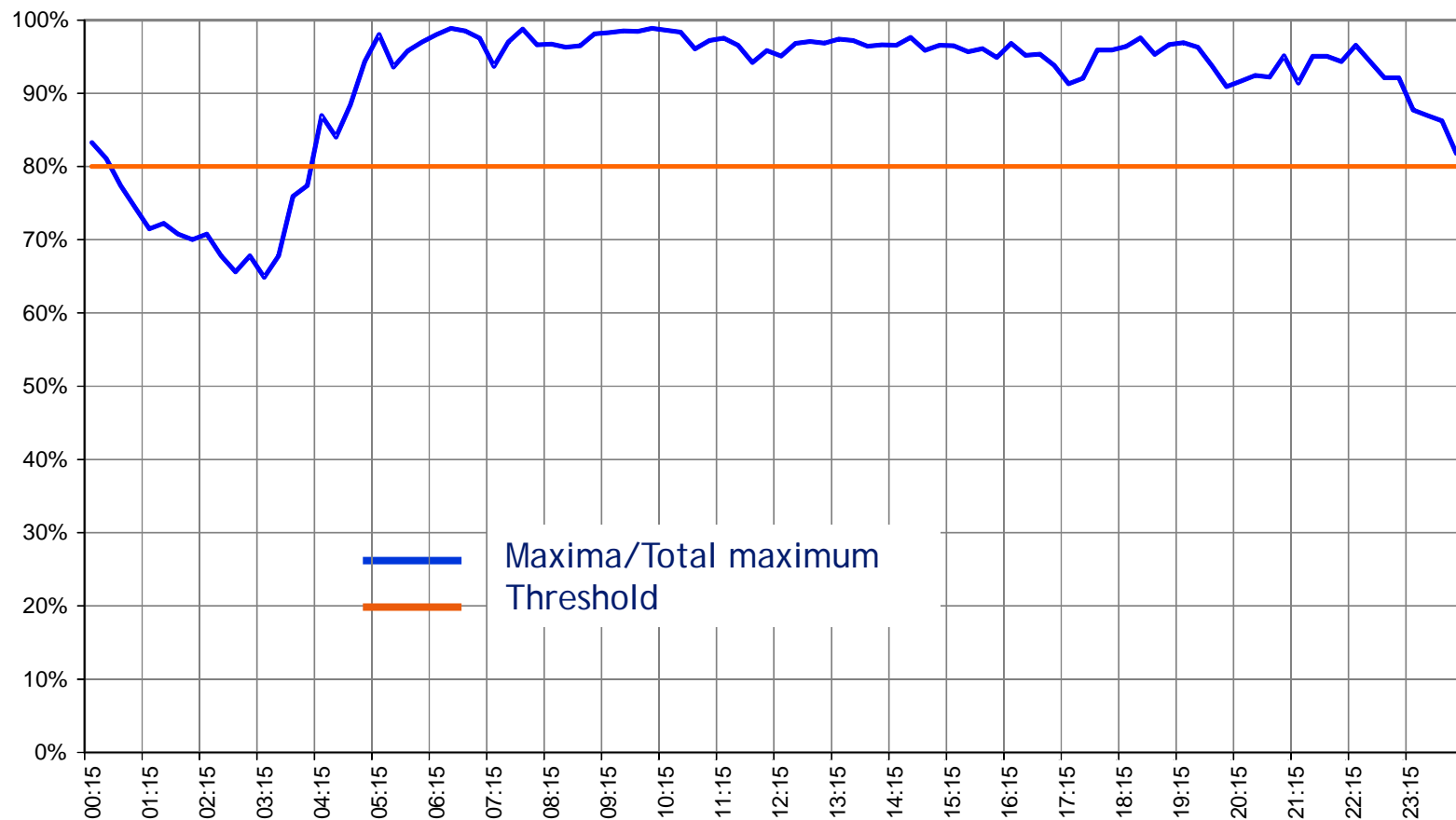


High load time frame 2012 for performance evaluation according to §19 Abs. 2 Satz 1 StromNEV

		Time frame 1	
		High voltage/Medium voltage	
		from	to
Spring	1 March - 31 May	-	-
Summer	1 June - 31 Aug	-	-
Autumn	1 Sep -30 Nov	-	-
Winter	1 Dez - 28/29 Feb	17:00	19:30

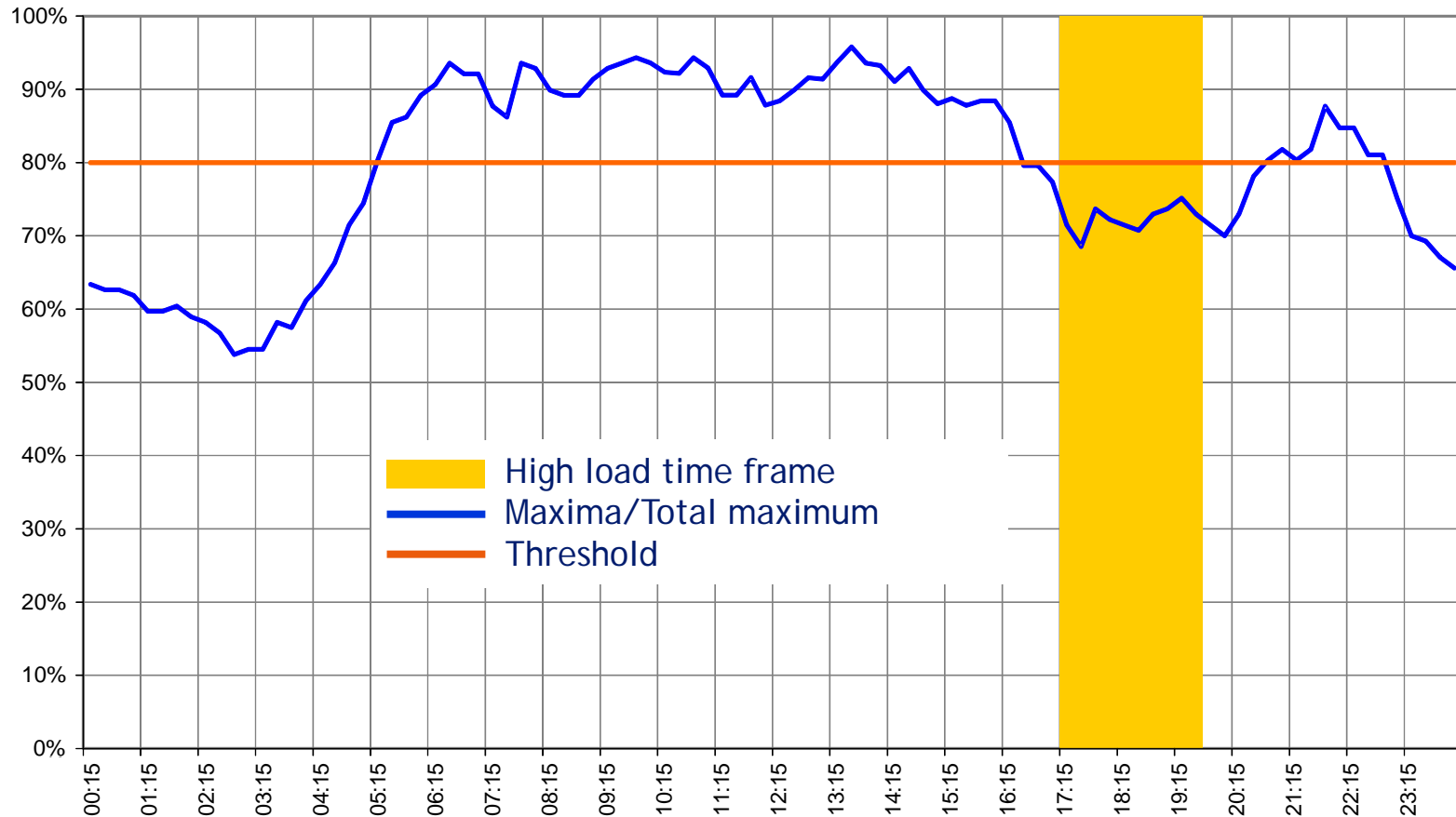
Evaluation of the A typical Network Usage

¼hr.- value in Summer 2012 [100% = 2.171 kW]



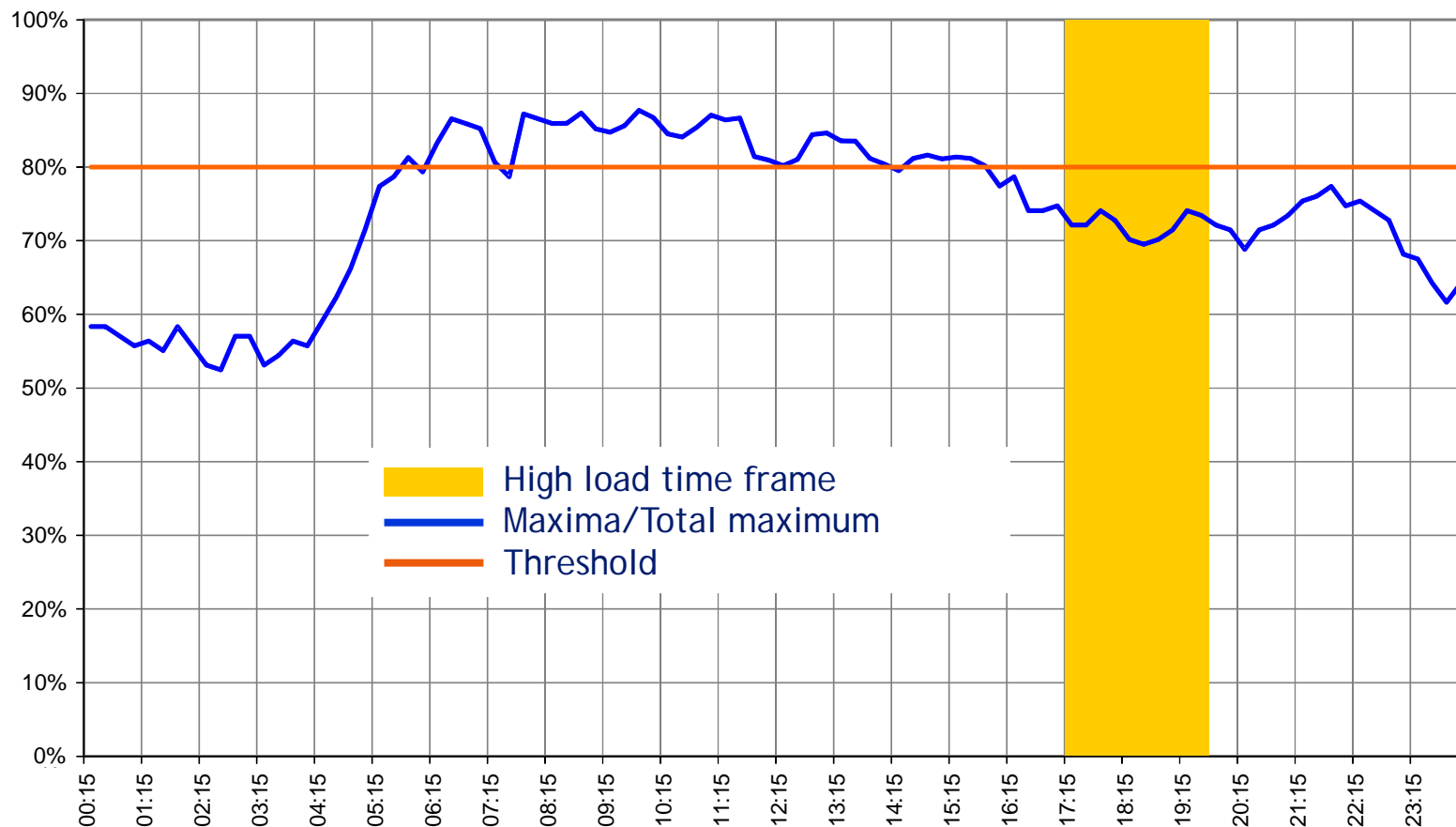
Evaluation of the A typical Network Usage

¼hr value in Winter 2012 [100% = 2.171 kW]



Evaluation of the A typical Network Usage

¼hr Value in Winter 2013 [100% = 2.440 kW]



Evaluation of the A typical Network Usage

Saving potential 2013:

ZP: DEXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

	2012	2013
Jahresarbeit (tatsächlich/prognostiziert)	12.746 MWh/a	13.487 MWh/a
Benutzungsdauer auf P _{max}	5.871 h/a	5.527 h/a
P _{max}	2.171 kW	2.440 kW
P _{max(HL)}	1.632 kW	1.868 kW
Datum für P _{max(HL)}	13.12.2012	01.10.2013
Zeitpunkt für P _{max(HL)}	19:15	18:00
Differenz:	539 kW	572 kW
mindestens 100 kW-Leistungsunterschied ab 2013	539 kW	572 kW
Tatsächliche Abweichung:	24,83%	23,43%
Prozentuale Mindestabweichung:	20,00%	20,00%
Erheblichkeitsschwelle ab 2013:	a) mindestens 20% und b) mindestens 100 kW	

2.440 load peak
less
1.868 Individual load
peak

= 572 KW

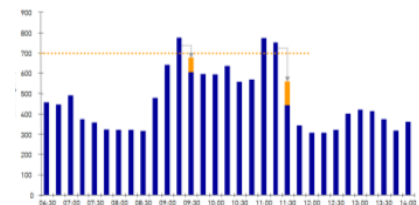
x 60,94 €/KW/a

Netzentgelt, regulär:	195.176 €/a	255.294 €/a
Fiktives NNE nach kleinem Preisblatt (BD<2.500h/a)	keine Wahlopt.	keine Wahlopt.
Fiktives NNE nach großem Preisblatt (BD>2.500h/a)	160.955 €/a	220.436 €/a
Errechnete Einsparung:	34.221 €/a	34.858 €/a
höchstens 80% der allgemeinen Netzentgelte:	156.141 €/a	204.235 €/a
mindestens (Bagatellgrenze):	500,00 €	

= 34.858 €/a

Measures for load reduction in High Load Time Frame

- Organisational measures
 - shift of production from high-load time to off-peak periods
 - Shut-down energy intensive plants
 - ...
- Technical measures
 - Use own power generation plants
 - ...
 - Use load optimisation for output limitation
 - Shift of power peaks
 - Shut-down power plants
 - Thermal consumers
 - Cooling systems
 - Ventilation systems





Energie
braucht Impulse

Further questions concerning energy efficiency?



Talk to us!
We make time for your questions!

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