

A decorative graphic consisting of two stacked squares: a light green one on top and a dark blue one on the bottom.

Impulses

to load shedding - decoupling of power peaks in
the hospitality industry

Stefan Humenberger, M.Sc. | Power Solution Energieberatung GmbH

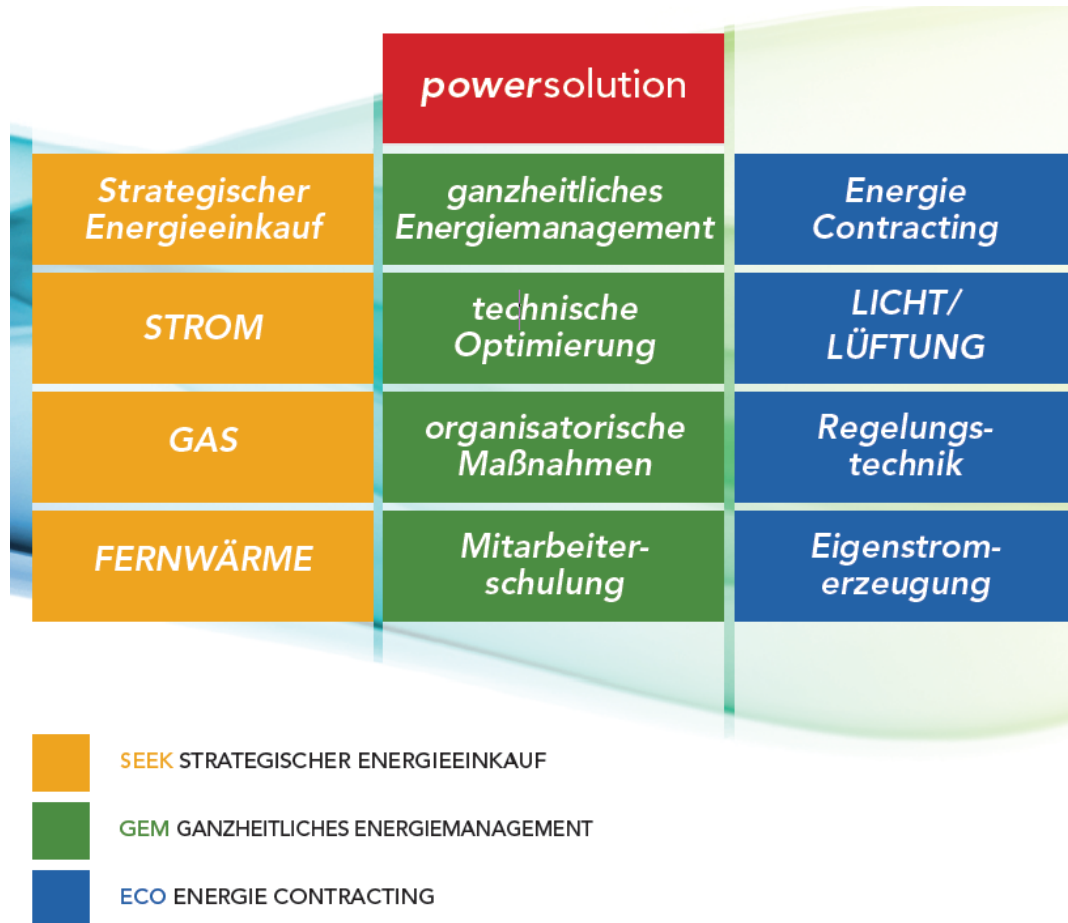
5th International Conference for European EnergyManagers
14th - 15th May 2014, Vienna

Content

- Introduction PowerSolution Energieberatung GmbH
- Tarifs in Austria
- Analysis of a typical hotel load profile
- Implementation in a Viennese hotel
- Cost savings, amortisation

Introduction

PowerSolution Energieberatung GmbH



Introduction

PowerSolution Energieberatung GmbH



STEIGENBERGER
HOTEL
BERLIN



European clients with energy consumption of more than 2.000.000.000 kWh have confidence in our know-how.



5th International Conference for
European EnergyManagers, 14th - 15th May 2014, Vienna



Tariffs in Austria

■ Groups of grid performance costs

Grid tariffs are determined by the „System Utilisation Tariffs“ regulation of the regulatory commission of the E-control.

- One off service fee
 - Grid use service fee [€/kW]
- Ongoing service fees
 - Grid use service fee [€/kW/Jahr]
 - Green energy subsidy for grid use service fee [€ / kW / year]

Grid tariffs vary according to grid operator and level

■ Performance components in energy price

- A mix of energy price applies in Austria
 - Base-Peak ratio
 - Power peaks

Tarifs in Austria

■ Once off grid tariffs [€/kW]

Netzbereich	NE1	NE2	NE3	NE4	NE5	NE6	NE7
Burgenland			12,00	44,00	107,00	152,00	238,00
Kärnten			13,98	67,75	76,12	152,24	239,15
Klagenfurt			-	49,49	61,16	208,48	265,33
Niederösterreich			22,40	44,09	101,48	132,27	210,65
Oberösterreich			11,80	45,67	97,50	150,00	208,00
Linz			-	49,45	113,32	171,01	226,63
Salzburg			21,68	78,55	136,86	152,69	293,63
Steiermark			11,40	44,70	90,50	133,80	198,90
Graz			-	0,00	90,50	139,00	202,40
Tirol			20,00	68,00	133,00	173,00	193,00
Innsbruck			-	67,95	105,87	141,10	176,42
Vorarlberg			29,00	48,00	79,00	107,00	167,00
Wien			10,29	52,76	90,26	113,81	235,47
Kleinwalsertal			-	-	79,18	106,83	166,74
Österreichischer Bereich	8,70	9,80					

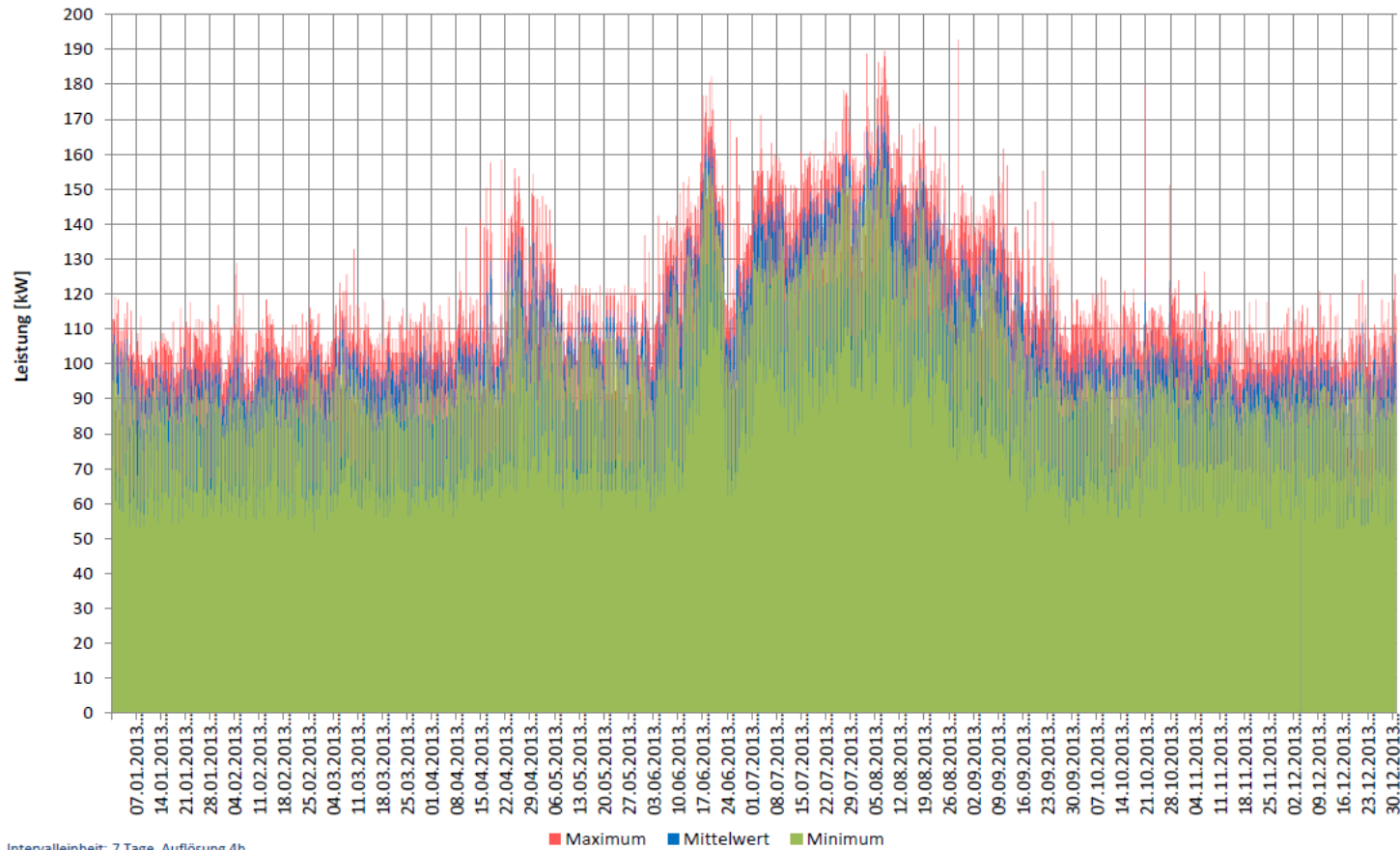
Tariffs in Austria

- Ongoing grid service fees [€/kW/Jahr]
 - Make up about 20% of the grid costs
 - Green energy subsidy for grid use - service fee according regional level and changes according to grid level
 - Grid tariffs vary according to grid operator and level

- Performance components in energy tariffs
 - Make up about 1-3% of the energy price.

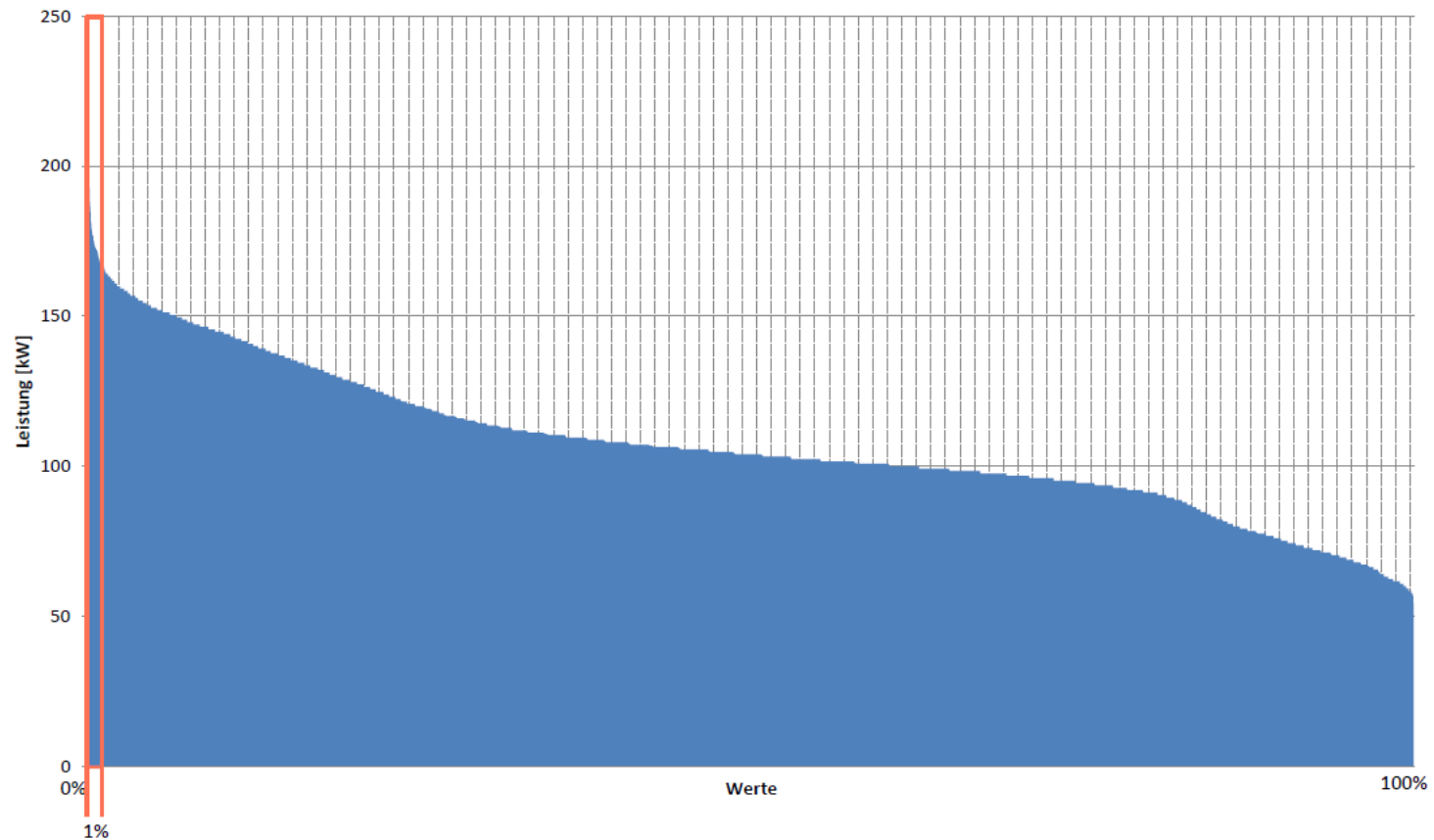
Analysis of a typical hotel load profile

■ Load curve of a hotel in Vienna (1year - 2013)



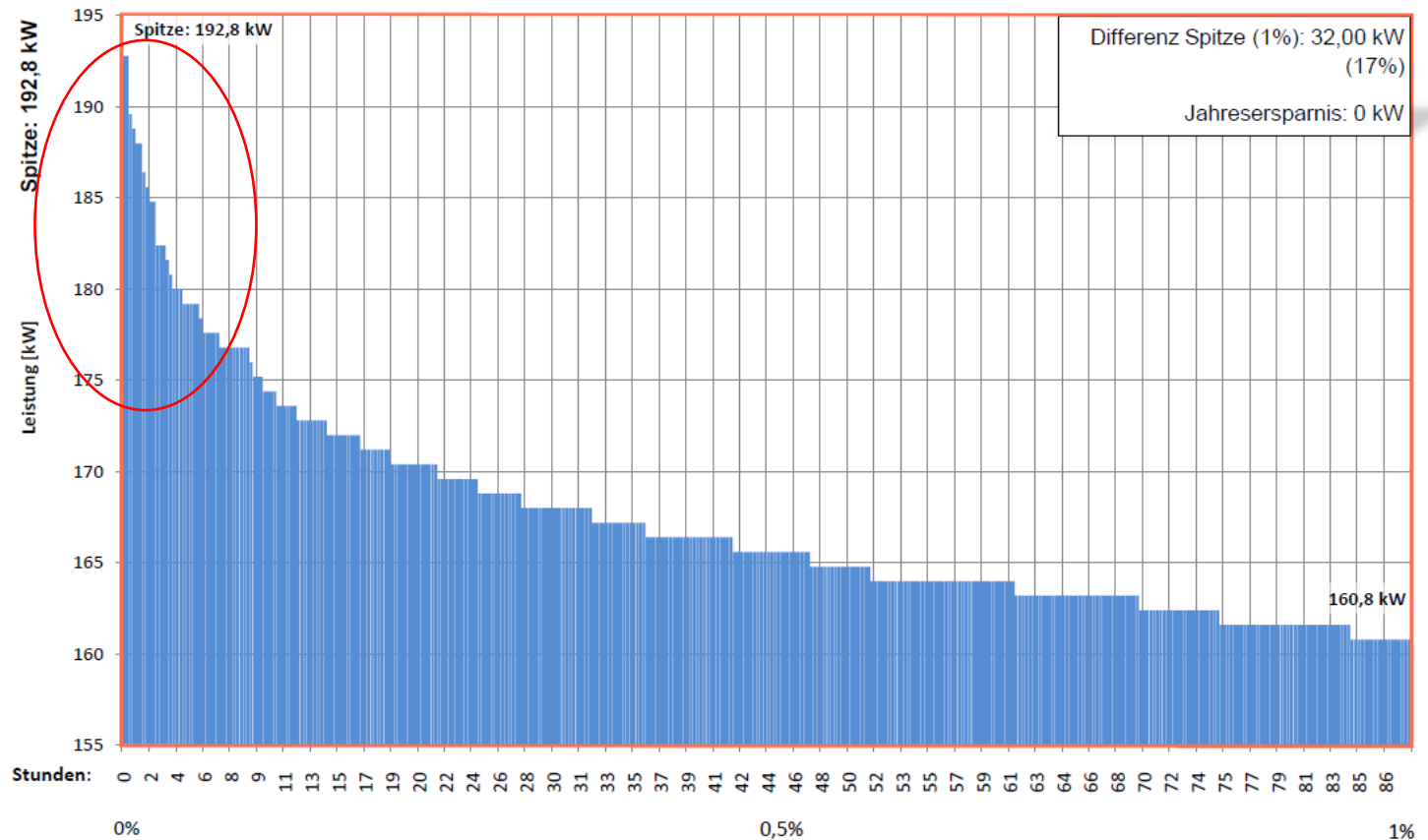
Analysis of a typical hotel load profile

■ Load distribution of a hotel in Vienna (1year - 2013)



Analysis of a typical hotel load profile

■ Load peaks of a hotel in Vienna (1year - 2013)



Implementation in a Viennese hotel

- Ibis Wien Mariahilf - ACCOR Hotelbetriebsges.m.b.H.
 - 341 rooms
 - Kitchen and hotel feed-ins were merged
 - Power peak 2010: 390kW
 - Extent of grid usage: 700kW
 - Net level 5

Implementation in Viennese hotel

- Merger of feed-ins of kitchen and hotel
 - A combined net level
 - before: net level 5 & 6
 - after: net level 5
 - Meter point specific costs
 - Ongoing grid costs are reduced by the higher net level
 - Load distribution changes
- Available load shedding systems must be reset
 - Higher base load

Implementation in Viennese hotel

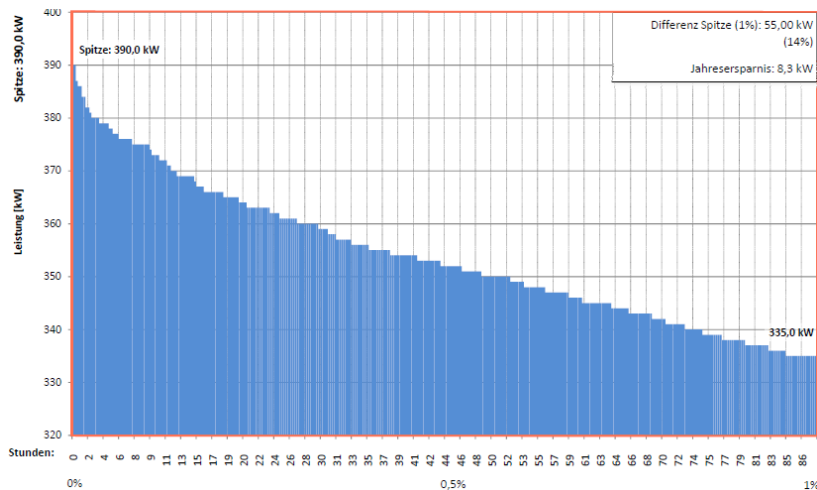
- Load shedding system of the company landis+Gyr
 - Installation costs approx. 3.500€
 - Load shedding set to 320kW
 - 4x air conditioners at 25,8kW each
 - 2x air conditioners at 15kW each

Implementation in Viennese hotel

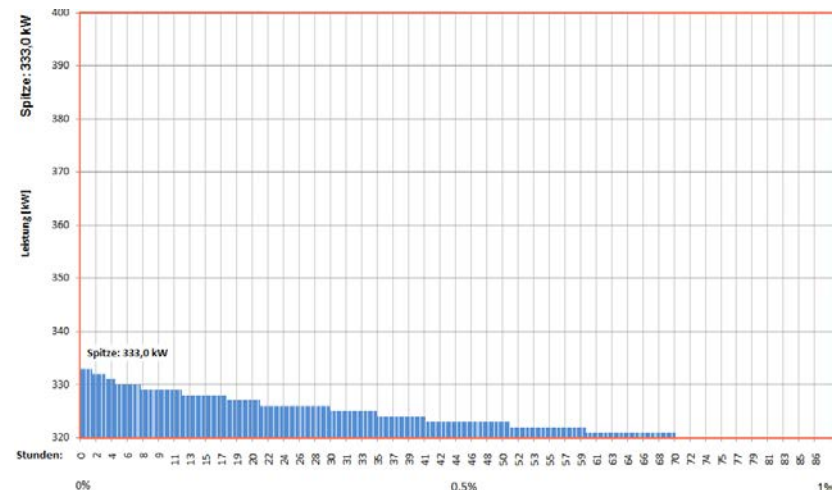
Power peaks

- Reduction of the power peaks by 57kW

2010 - peak 390kW

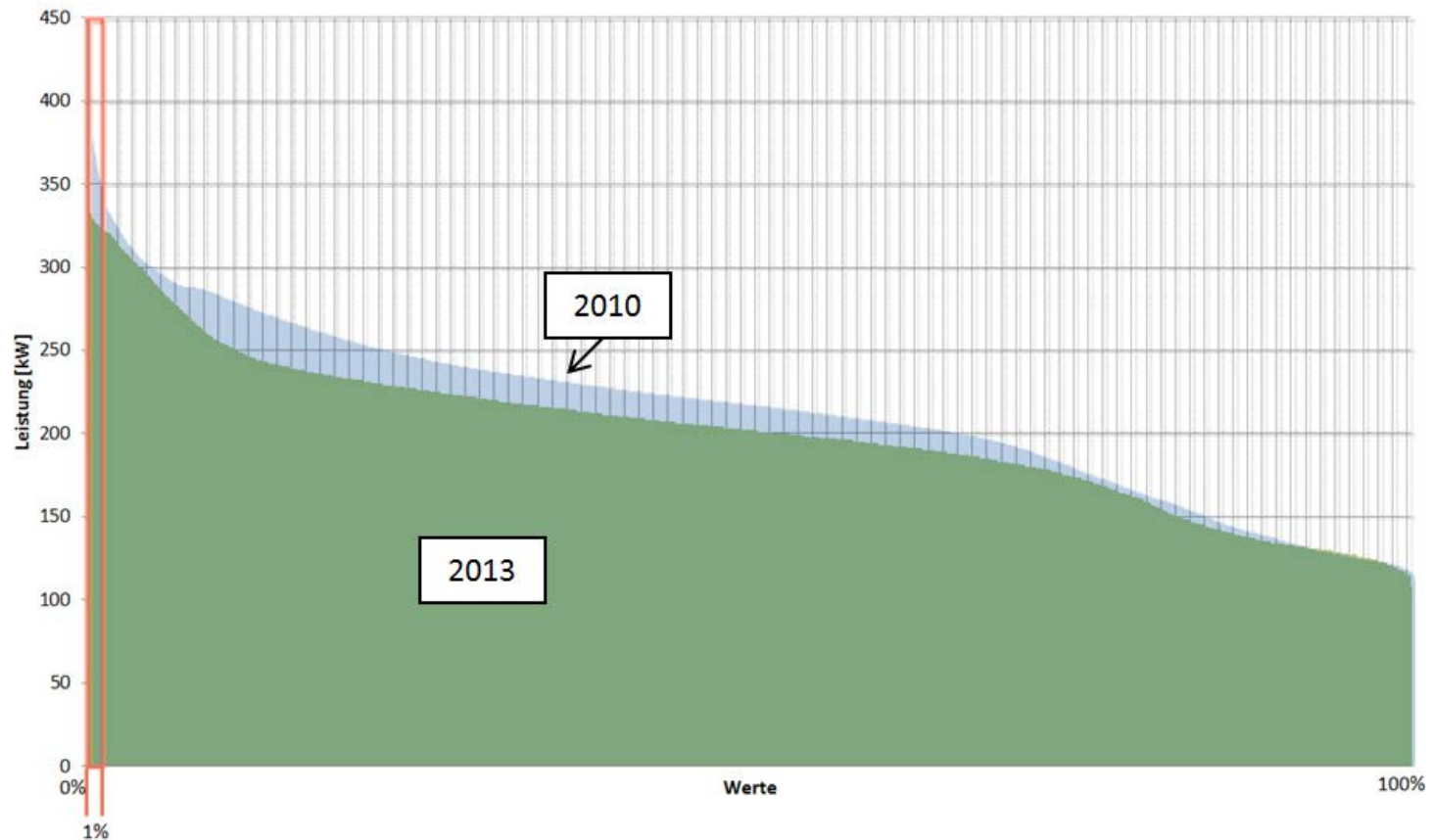


2013 - peak 333kW



Implementation in Viennese hotel Medium load

■ Reduction of the medium load by 15kW



Cost Savings, Amortisation

- Ongoing performance cost grid level 5 in Vienna:
 - Grid use service fee (Stand 2014)
 - 39,12 [€/kW/Jahr]
 - Green energy subsidy for grid use (Stand 2014)
 - 10,75 [€/kW/Jahr]

- Annual savings (15kW)
 - Approx. 750€/year grid costs
 - approx 1.800€/year energy costs (1-3% energy cost reduction)

Cost Savings, Amortisation

- Once off service fees grid level 5 in Vienna
 - Grid use service fee (Stand 2014)
 - 90,26 [€/kW]
- Once off refund (57kW)
 - about 5.150€

Cost Savings, Amortisation

- Cost of load shedding system:
 - about 3.500€

- Annual savings:
 - about 2.550€

- Amortisation period of the system:
 - 1,37 years

- Amortisation period if a refund of the grid use fee is possible
 - <1 year

power solution The *energy* partner in the free market



power solution gmbh
A-1230 Wien, Perfektastraße 77/1
Tel.: +43 (1) 895 79 32
e-mail: office@power-solution.at

power solution gmbh
D-10117 Berlin, Friedrichstraße 191
Tel.: +49 (30) 206 59 466
e-mail: office@power-solution.eu

power solution gmbh
D-67071 Ludwigshafen, Adolf Diesterweg Straße 139
Kontakt über das Büro Berlin