

SAP for Utilities

Enabling the Energy Supply of the Future

AMI Webcast, July 30, 2008



Providing Energy Efficiency to Consumers:
SAP's AMI solution addresses the needs of
the Utilities industry

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Slow Climate Change and reduce burning of fossil fuels



the Improvement of Energy Efficiency



the development / Installation of . .

- a sustainable Technology
- a Financing Model
- a Regulatory Framework

. . . as a pre-condition to install and run

 Advanced Metering Infrastructure

. . . being the basis for

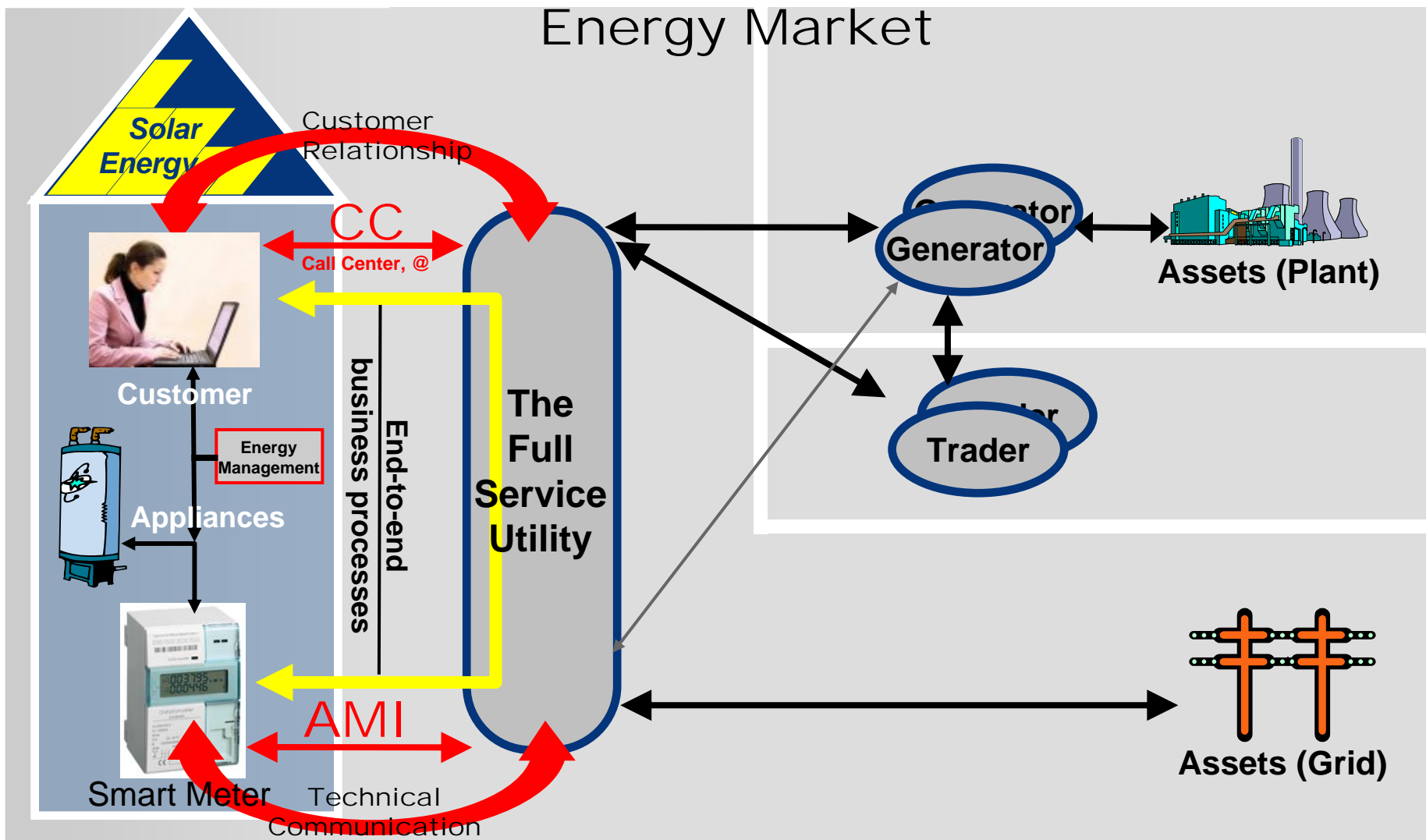
 Smart Grids, Virtual Utilities



Subject of benefit	Who	Value
Supports the delivery of CO2 reduction targets	Society	+++...
Enables customers to supervise energy consumption, to save energy and hence to lower energy costs	Customer	++
Facilitates selling of Energy Efficiency Products/Services	Utility	++
Reduces Cost to Serve per customer	Utility	+ → ++
Facilitates improved utilization of grid and generation assets	Utility	++
Provides Infrastructure for Non Commodity Services	Utility	+
Allows for better Customer Service	Util/Cust	+
<ul style="list-style-type: none"> ■ Improves accuracy of energy consumption & billing ■ Accelerates service execution time ■ Improves debt management ■ More customer-friendly prepayment products ■ Extends range of energy efficiency products 		
Supports Forecasting and Energy Portfolio Management	Util/Cust	+++
Improves Reliability of Service	Util/Cust	+++
Reduces the need for additional generation capacity	Utility	++
Supports Micro Generation („Virtual Utilities“)	Utility	++

Value in red: tough to prove

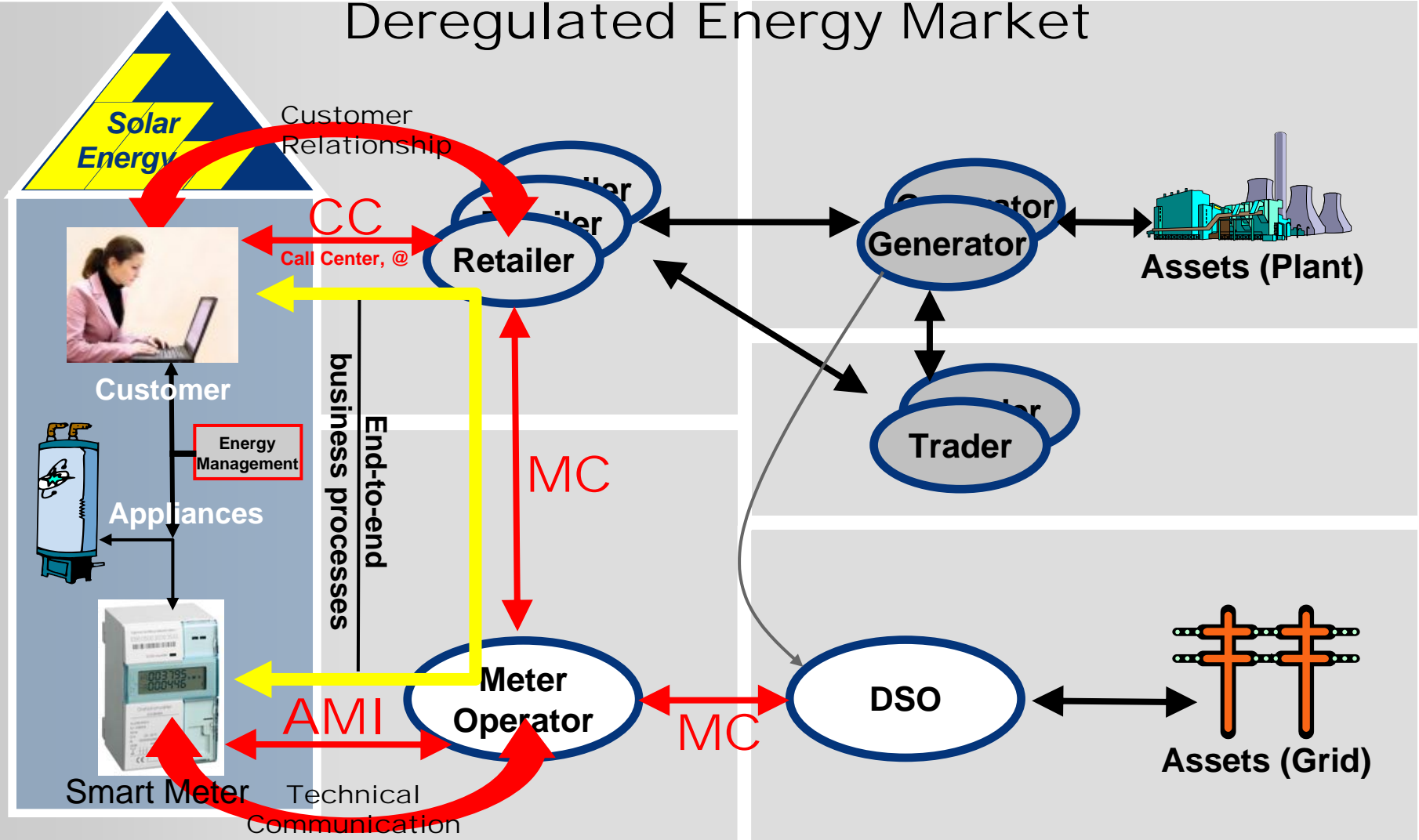
The success of AMI hinges on its integration to Back Office applications



CC: Customer Communication; AMI: Advanced Metering Infrastructure

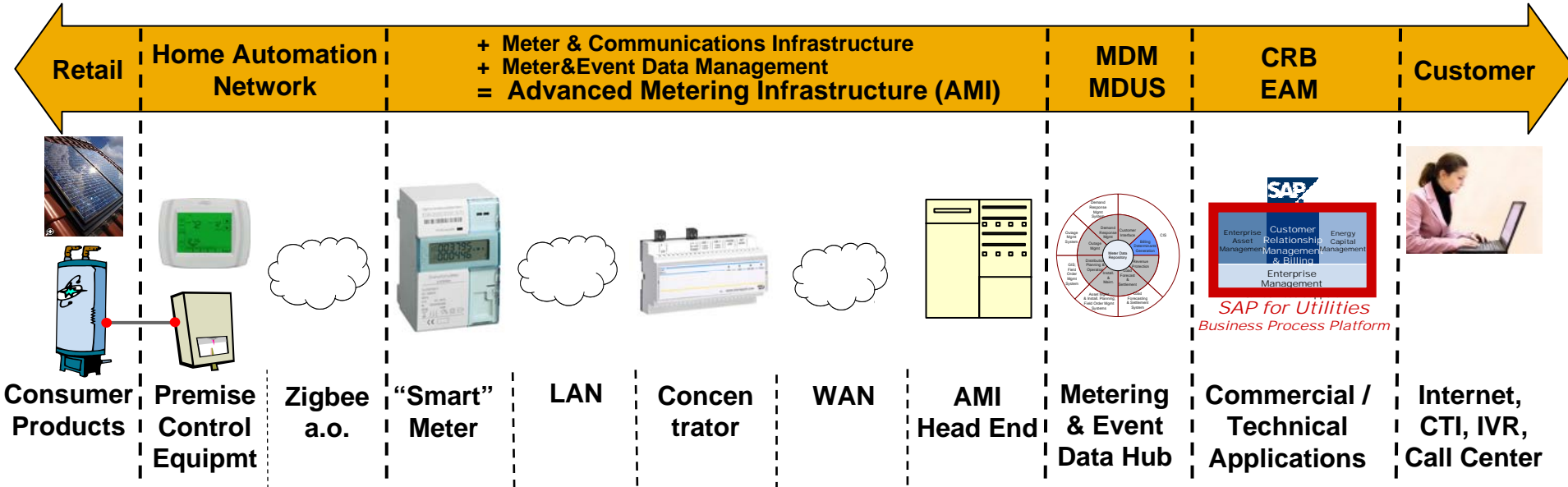


Deregulated Energy Market



CC: Customer Communication MC: Market Communication
AMI: Advanced Metering Infrastructure

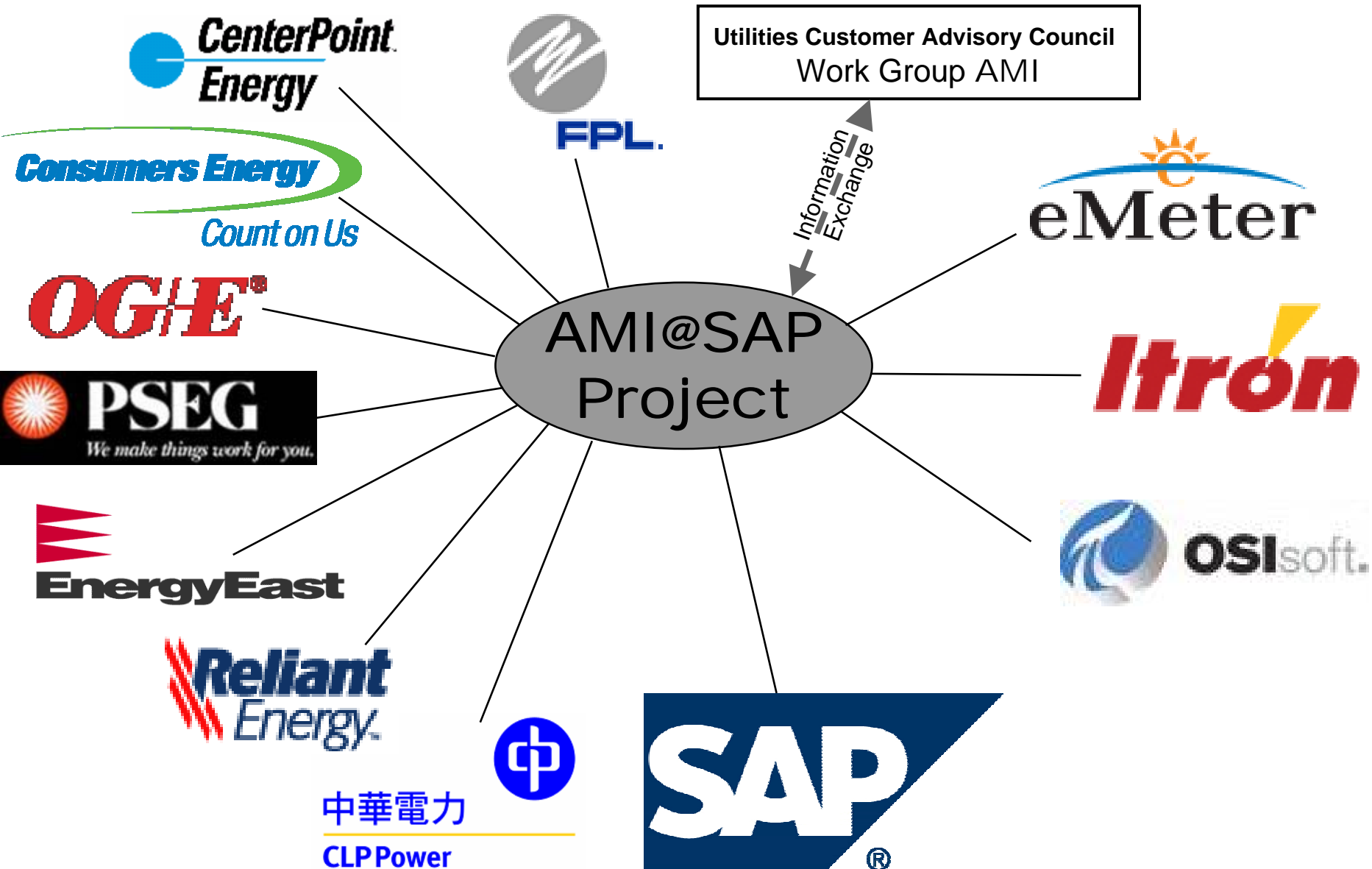
A Solution supporting end-to-end processes



Design Principles

- Leverage the strength of the SAP for Utilities Business Process Platform
- Support incumbent as well as unbundled (deregulated) enterprise roles
- Keep design of systems collaboration simple
- Scale to the large data volumes and process rates
- Secure from unauthorized access
- Stay compliant to Industry Standards
- Leverage Enterprise Services oriented Architecture

The SAP AMI Lighthouse Council Members



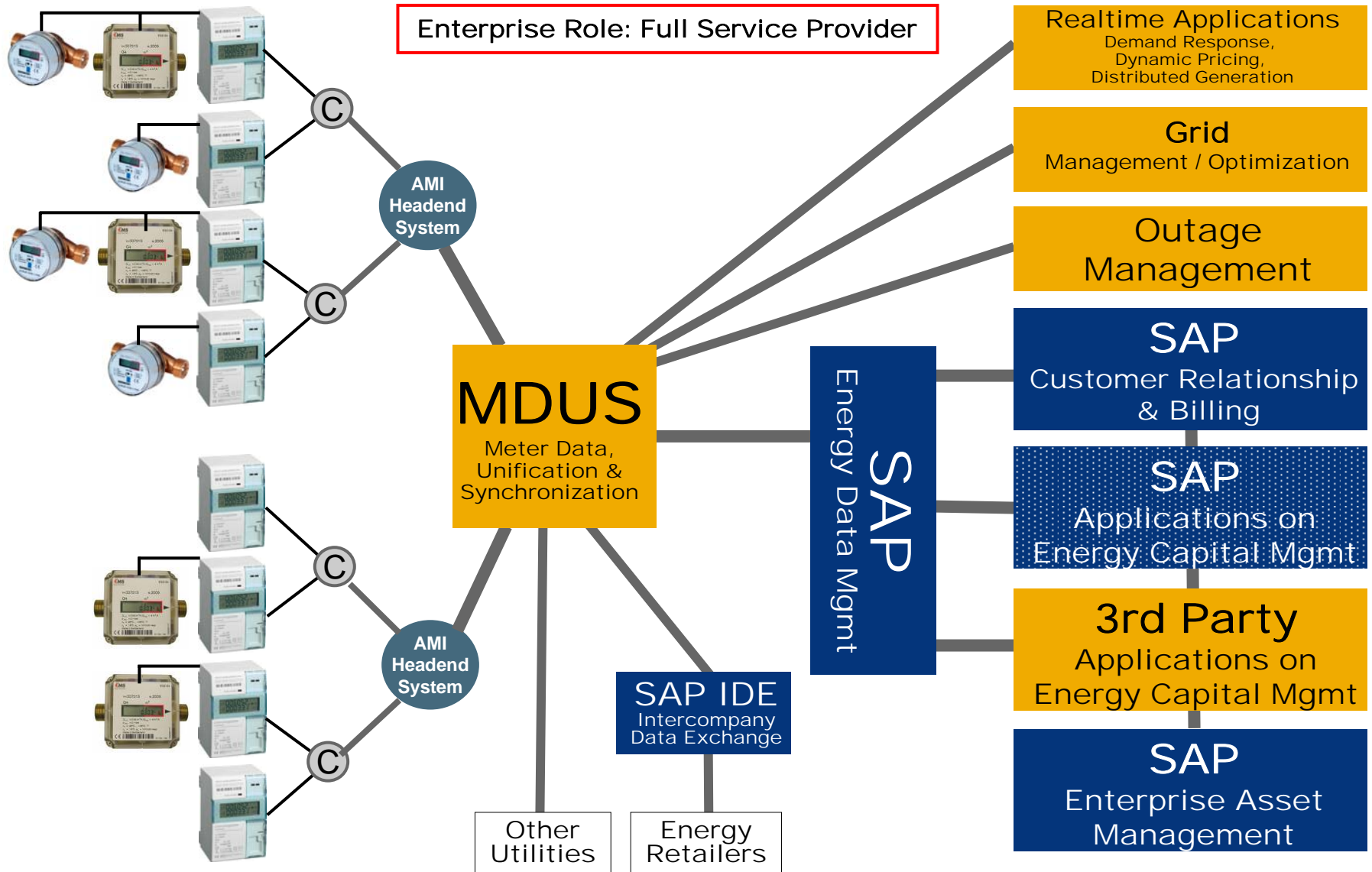
Under the leadership of SAP, market-leading Utilities and MDM vendors cooperate in the AMI Lighthouse Council. Objective is to achieve the seamless integration of the SAP for Utilities solution to market-leading AMI Systems such that end-to-end processes can be executed fully combining the technical capabilities of Smart Meters and AMI Technology with the SAP for Utilities solution.

Achieving the success and benefit when implementing the joint integrated solution will very much depend on the company's ability and willingness to strictly follow the system architecture and process standards on which the development is based on.

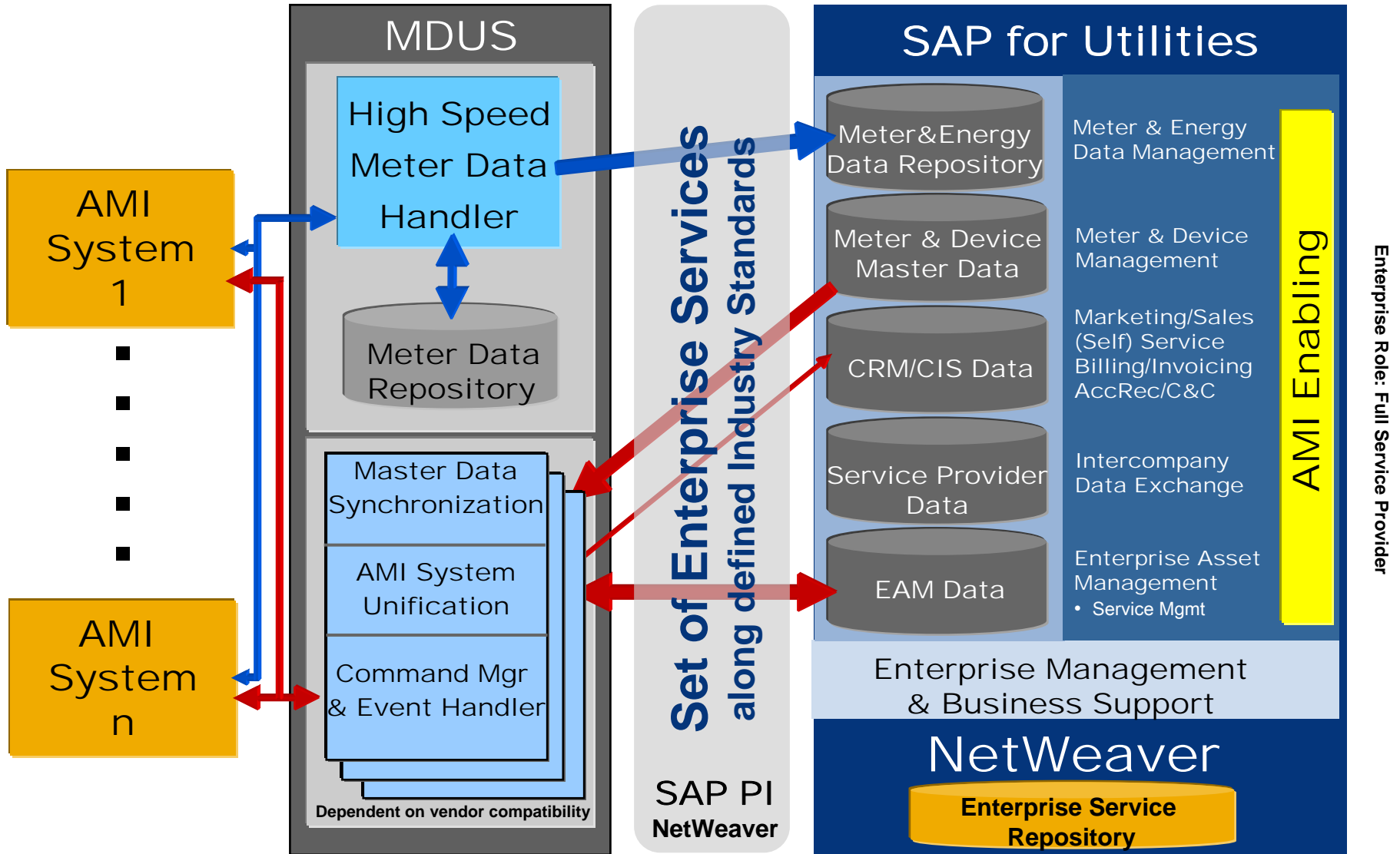
SAP will continuously extend the solution following the evolution in the industry (Releases).

SAP plans optimizing the data management of the MDUS and SAP for Utilities systems jointly with the MDUS vendors such that the solution scales to very large data volumes while achieving lowest TCO.

Integrating AMI to Business Applications



Integrating MDUS Systems to SAP for Utilities



AMI-Vendors

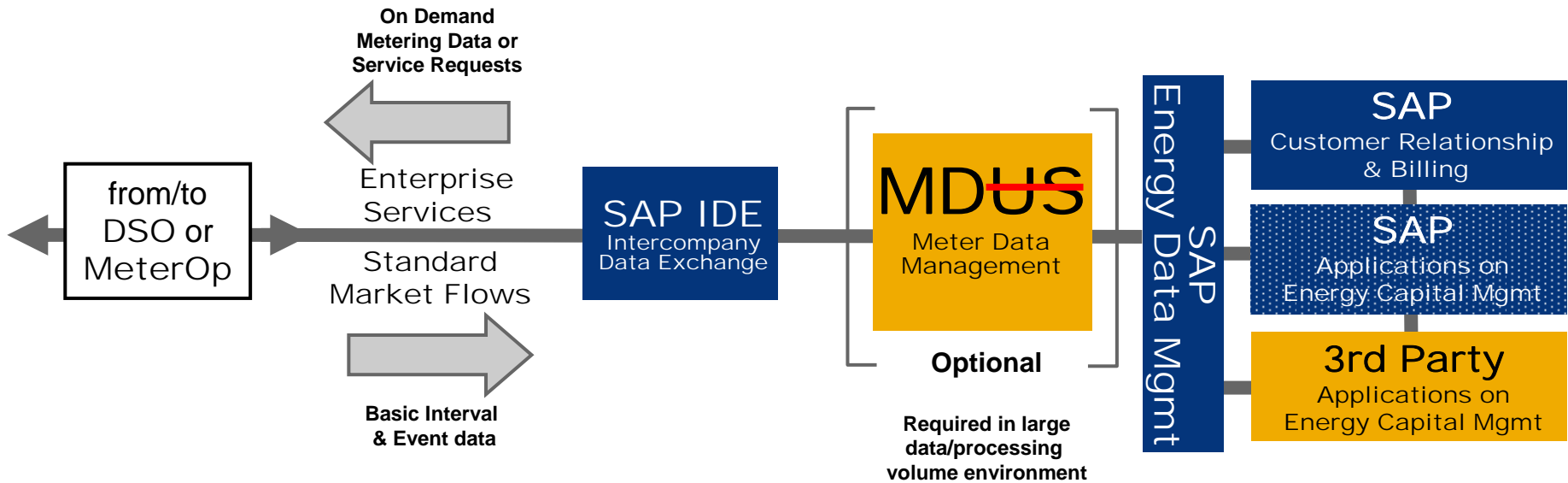
AMI/MDM-Vendors

MDM-Vendors





Enterprise Role: Energy Retailer



Billing for a ToU Energy Product



„Time of Use (ToU)“
Energy Product

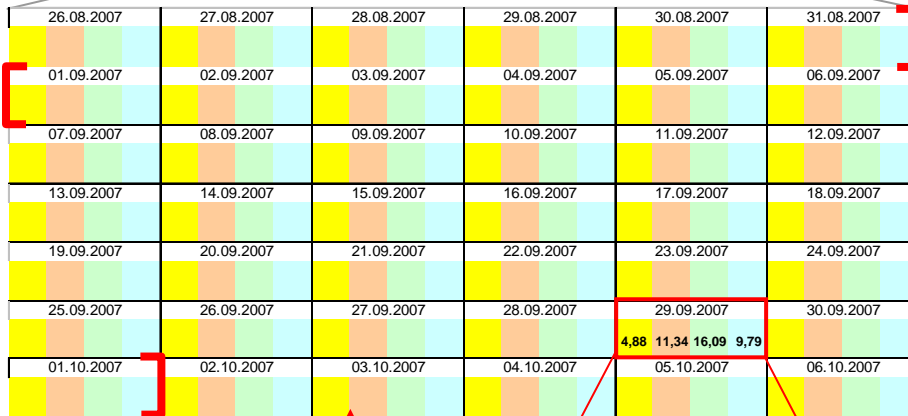
Values as of
01.10.2007/24:00

off peak	124,32
on shoulder	347,72
peak	491,15
off shoulder	286,87

Stack of n (example:6) value combinations

27.09.2007	28.09.2007	29.09.2007	30.09.2007	01.10.2007	02.10.2007
...	118,89	124,32	130,23
...	335,04	347,72	359,98
...	475,21	491,15	509,85
...	275,87	286,87	297,13

to SAP
for billing



time

29.09.2007			
4,88	11,34	16,09	9,79

Per day:

DAYToU-1:= sum(BID1:~4,BID23,BID24)

DAYToU-2:= sum(BID5:~11)

DAYToU-3:= sum(BID12:~18)

DAYToU-4:= sum(BID19:~22)

Do i=1:N

CycleToU-(i)1:=CycleToU(i+1)1

CycleToU-(i)2:=CycleToU(i+1)2

CycleToU-(i)3:=CycleToU(i+1)3

CycleToU-(i)4:=CycleToU(i+1)4

End

CycleToU-(N)1:= CycleToU-(N-1)1+DAYToU-1

CycleToU-(N)2:=CycleToU-(N-1)2+DAYToU-2

CycleToU-(N)3:=CycleToU-(N-1)3+DAYToU-3

CycleToU-(N)4:=CycleToU-(N-1)4+DAYToU-4

Daily
from Smart Meter
via AMI
into MDUS

27.09.2007																							
Time of Use -1					Time of Use -2					Time-of Use -3					Time of Use -4				ToU -1				
01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
0,55	0,45	0,62	0,70	0,90	1,00	1,80	2,55	2,40	1,23	1,46	2,75	3,12	2,43	2,21	1,46	1,78	2,34	2,55	2,97	2,64	1,63	1,43	1,13



MDUS (Meter Data, Unification and Synchronization)

MDUS stands for the most important tasks when integrating a Meter Data Management (MDM) System to a Back Office System, that is a comprehensive and functionally rich Business Process Platform such as SAP for Utilities

- **It manages very large volumes of metered consumption data (in particular Basic Interval Data, BID) and very large volumes of event data at highest speed and lowest TCO**
- **Through a unified integration to several AMI Systems the MDUS acts as a hub for metered consumption data and event data thus making this data independent from the specific AMI Systems that collected the data from Smart Meters**
- **The MDUS synchronizes master data for AMI Systems with those back office applications that are the System of Record for the respective master data**

SAP for Utilities

SAP for Utilities stands for the global market leading Utilities-oriented Business Process Platform

- **Responsible for Customer Relationship & Billing, Enterprise Asset Management and basic ERP processes**
- **The System of Record for „processing-relevant“ metering data**
- **Responsible for Energy Capital Mgmt Processes (processes on derived Load Profiles)**

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