DIEHL
Metering

MIOTY® & MIOTY FOR METERING

**The pioneer radio technology
for the metering world**

MIOTY® & MIOTY FOR METERING

ENRICHING A VARIETY OF INDUSTRIES WITH A MULTITUDE OF INFORMATION

Diehl Metering introduces you mioty® for Metering – the state of the art connectivity technology based on mioty® which equips utilities for the special challenges and use cases of the Metering industry.

mioty® – the breakthrough technology for massive IoT as base for mioty® for Metering.
Developed by the German Fraunhofer IIS Institute for Integrated Circuits, the mioty® wireless technology is designed to become a worldwide standard for the Internet of Things (IoT), in which devices are connected to the internet. Thanks to an infrastructure in which communicating end-devices generate and transmit data, it has never been easier to receive valuable information to understand what is going on in your network in order to optimize it.

The near-future goal of IoT is to connect billions of devices. On the one hand this provides unprecedented amounts of information to improve the life of cities, industrial companies and other sectors. However, on the other hand this comes with challenges for transmitting a huge amount of data in a reliable way and over long distances.

mioty® is **a low-power wide area network (LPWAN) solution** that overcomes those limitations by being **robust, scalable and energy-efficient**. Thanks to its **patented telegram splitting**, messages get divided into multiple sub-packages and transmitted at different times and frequencies to be ready for large-scale deployment without any interferences. mioty® operates in a license-free spectrum and is compliant with the ETSI standard.

mioty alliance – strong partners to create a more accessible and interoperable LPWAN standard
The mioty alliance provides a platform on which companies can on-board to develop an end-to-end solution across the entire IoT value chain. As a full member of the alliance, Diehl Metering brings its expertise to further enrich the technology.

MIOTY® FOR METERING – THE PIONEER RADIO TECHNOLOGY FOR THE METERING WORLD

The mioty® technology targets a wide variety of IoT applications. However, it is **mostly known for smart city applications** such as smart street lighting, smart waste management, smart parking etc.

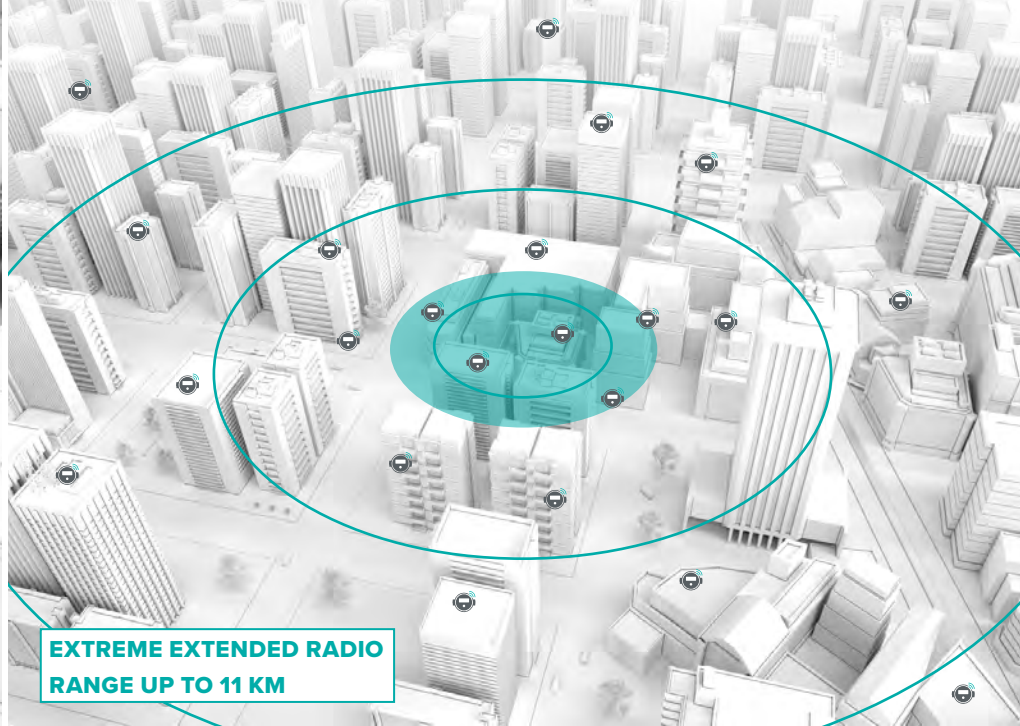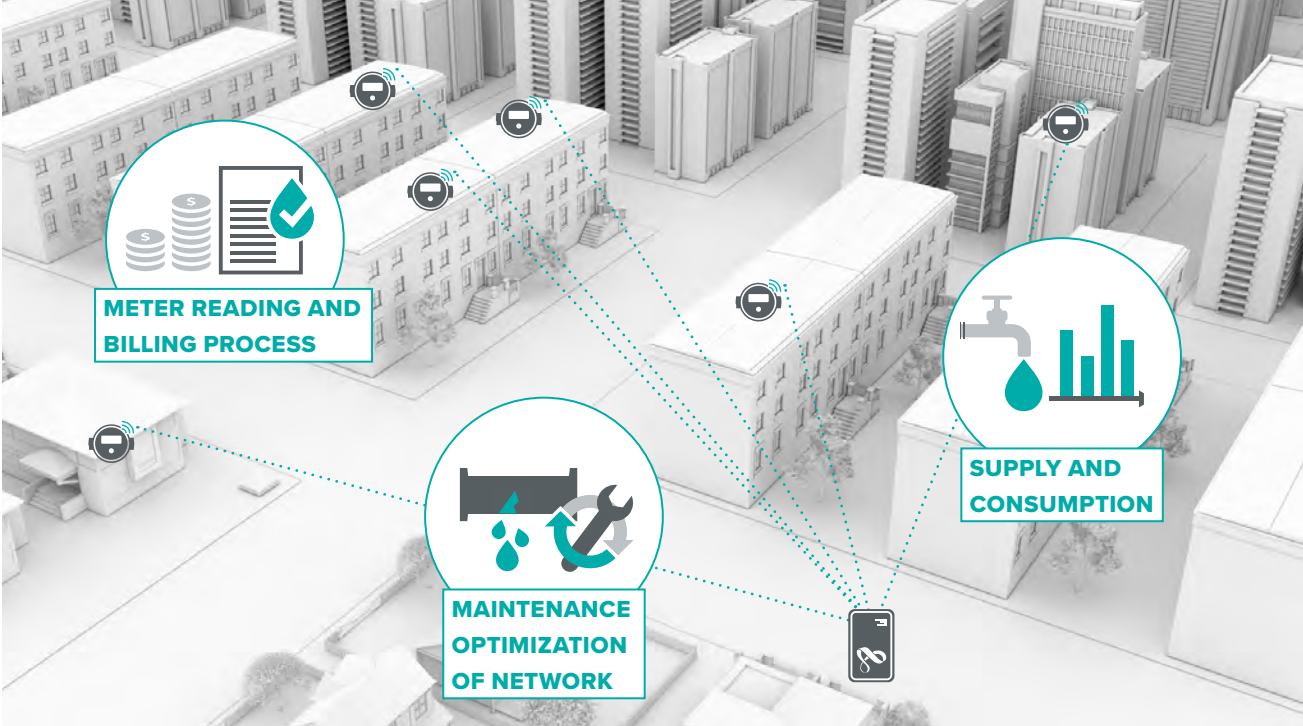Since the Metering industry requires different use cases, additional features were developed. Diehl Metering offers utilities **mioty® for Metering**, a subset of the overall mioty® standard, **using only those parts of the technology that are beneficial for metering applications.** Diehl Metering's ambition is to make mioty® for Metering the new IoT radio standard for the Metering world.

As a result of using the **Open Metering System (OMS)** protocol, all already established software solutions (e.g. billing, consumption monitoring) and processes (meter replacement) can be used for mioty® for Metering, thus securing the installed software base and reducing your effort to a minimum.

End-points   Communication   Base station   Software
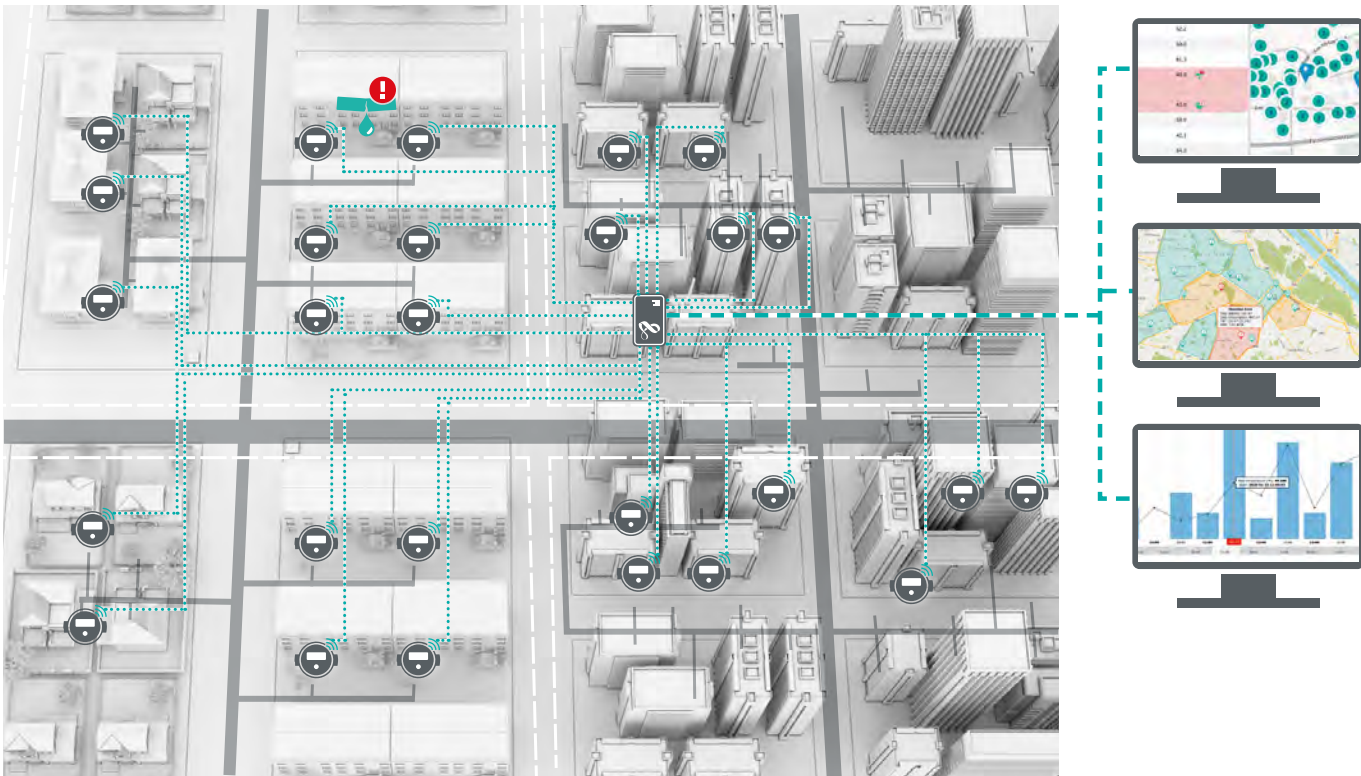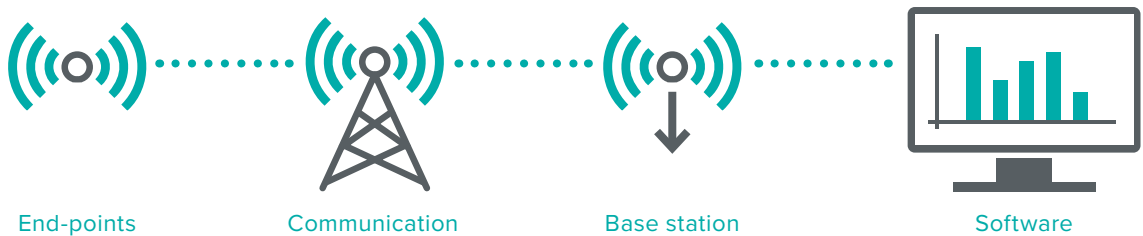
SMART METERING APPLICATIONS

OVERCOMING THE CONNECTIVITY CHALLENGES OF THE METERING INDUSTRY WITH MIOTY® FOR METERING

METER READING AND BILLING PROCESS

MAINTENANCE OPTIMIZATION OF NETWORK

SUPPLY AND CONSUMPTION

EXTREME EXTENDED RADIO RANGE UP TO 11 KM

Special use cases require special technical performance
Typical use cases in the Metering world range from needing consumption values for an easier billing process over improving the operation of the utility by receiving better and faster information about anomalies in the network (e.g. leakages, to more frequent data to optimize supply and demand).

In comparison to other industries, some specific metering use cases depend very much on data timeliness and data granularity.

High data timeliness plays an important role when utilities need to know as early as possible when there is something wrong in their network in order to react quickly to reduce potential damage.

For some use cases it is crucial to have more granular data to understand better what happened when an anomaly occurred or e.g. to track and improve bad consumption behaviors. The more information a utility has, the better it is for its decision-making process, since actions always imply investments and costs that need to be worthwhile.

However, the frequency and data volume comes with a price, since it has an impact on the transmission and the battery lifetime of the communicating devices.

The mioty® for Metering technology enables a high service level agreement by delivering data as much, as often and as reliable as needed to perform your use cases – ensuring a great energy efficiency at the same time.

INTEROPERABILITY WITH OMS
▶ Manufacturer-independent device integration
▶ Integration of other specific sensors like for pressure, water quality, humidity etc.
▶ Integration into existing software systems by using the OMS protocol stack

All media
3rd party meters
Sensors
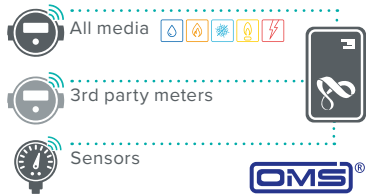
Your benefit
Be flexible in the choice of devices you would like to integrate in your network and benefit from diverse sensors.

MOBILE READING & FIXED NETWORK
▶ Flexibility to operate fixed network and/or mobile reading connectivity

Walk-by/Drive-by   passive Drive-by

fixed network
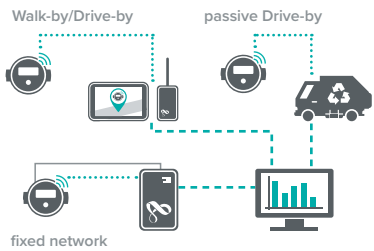
▶ Plug & Play – No network management server or device type integration is required

Your benefit
Select the best read-out method fitting your requirements without any additional configuration.

RADIO RANGE
▶ Extreme Extended Range Mode reaching up to 11 km
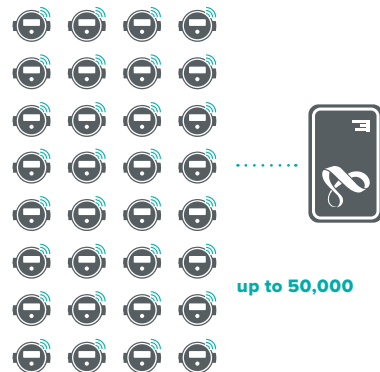▶ For reaching meters in challenging installation situations

up to 11 km depending on installation situation

Your benefit
Reduce investment and operating costs through reliable coverage of large areas with a lower number of receivers.

SCALABILITY
▶ Enables massive IoT
▶ Up to 50,000 transmitting devices

up to 50,000

Your benefit
Get numerous radio telegrams with only a few receivers and benefit from the low Total Cost of Ownership.

RADIO ROBUSTNESS
▶ Reliable data transmission through telegram splitting (sending at different times, different frequencies)
▶ Enables interference mitigation of other networks
▶ Lowest packet error rates despite a crowded spectrum

ABCD   ABCD
Data   subpackets
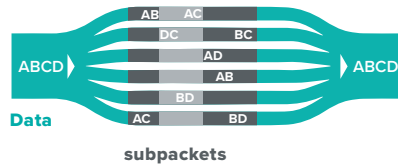
Your benefit
Profit from highest data availability without losing any important information.

DATA PROTECTION
▶ End-to-end security from meter to Meter Data Management (MDM) software

Your benefit
Your customers will value secured data flows.
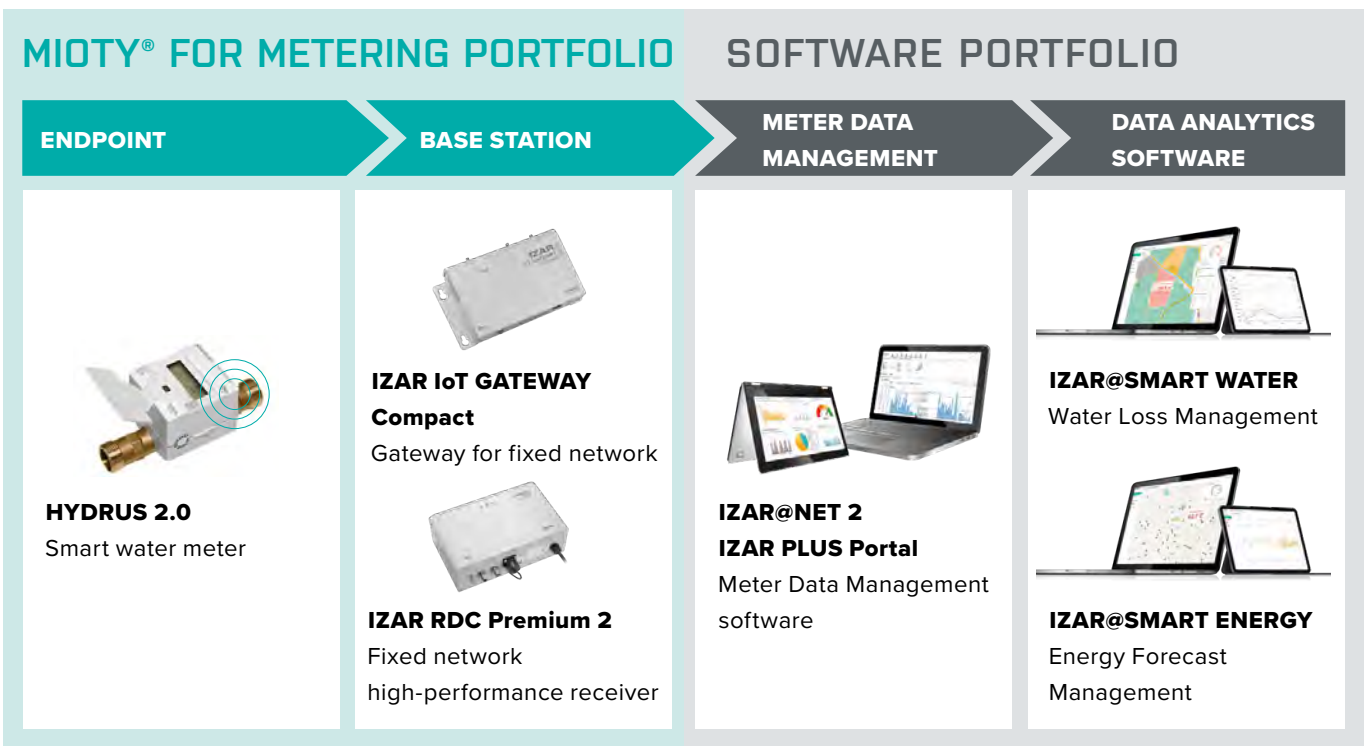
ENERGY EFFICIENCY
▶ Despite high data frequency, volume and extreme radio range
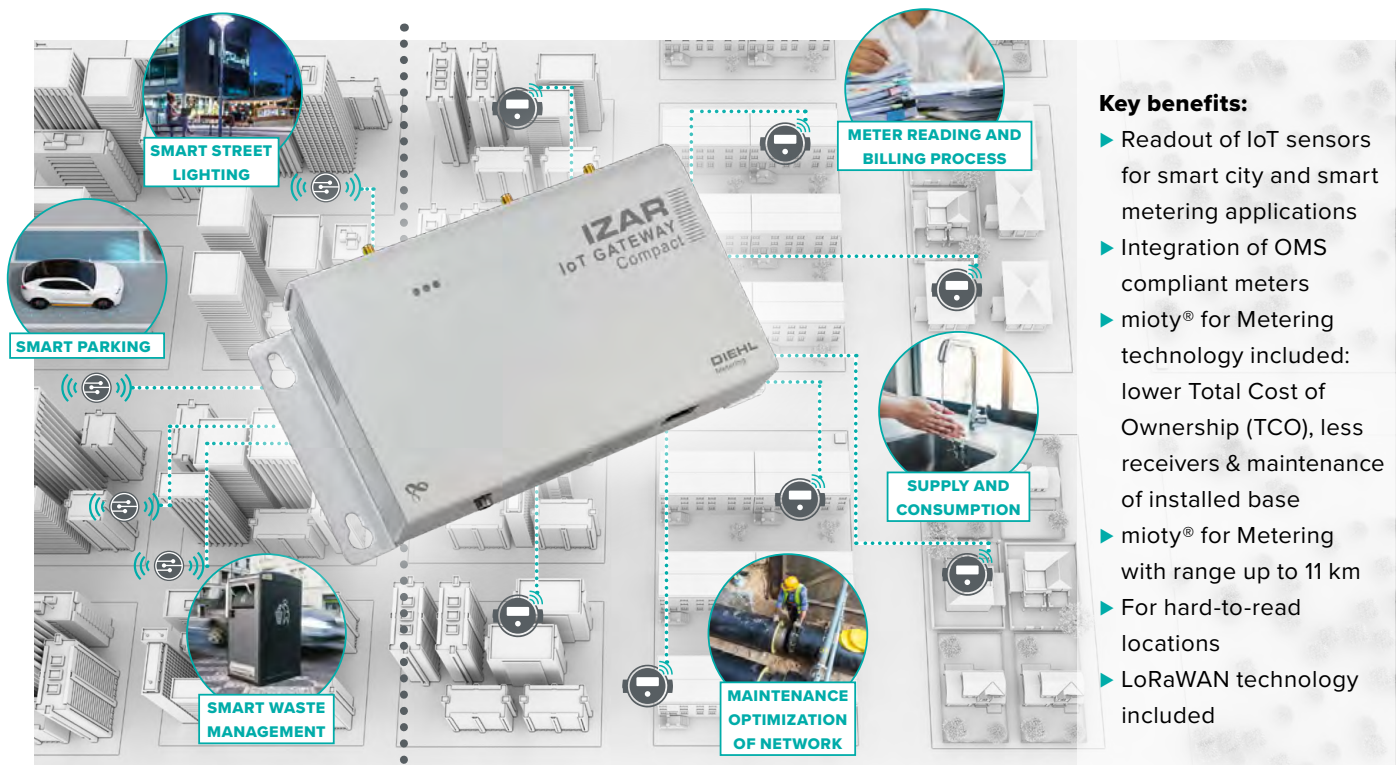
Your benefit
Makes it a worthwhile long-term investment.

EVERYTHING FROM A SINGLE SOURCE

MIOTY® FOR METERING PORTFOLIO   SOFTWARE PORTFOLIO

ENDPOINT	BASE STATION	METER DATA MANAGEMENT	DATA ANALYTICS SOFTWARE
HYDRUS 2.0 Smart water meter	**IZAR IoT GATEWAY Compact** Gateway for fixed network **IZAR RDC Premium 2** Fixed network high-performance receiver	**IZAR@NET 2 IZAR PLUS Portal** Meter Data Management software	**IZAR@SMART WATER** Water Loss Management **IZAR@SMART ENERGY** Energy Forecast Management

IZAR IoT GATEWAY COMPACT

THE FIXED NETWORK GATEWAY FOR SMART METERING AND DOOR OPENER FOR DATA TRANSMISSION OF SMART CITY APPLICATIONS

SMART STREET LIGHTING

SMART PARKING

SMART WASTE MANAGEMENT

METER READING AND BILLING PROCESS

SUPPLY AND CONSUMPTION

MAINTENANCE OPTIMIZATION OF NETWORK

Key benefits:
- ▶ Readout of IoT sensors for smart city and smart metering applications
- ▶ Integration of OMS compliant meters
- ▶ mioty® for Metering technology included: lower Total Cost of Ownership (TCO), less receivers & maintenance of installed base
- ▶ mioty® for Metering with range up to 11 km
- ▶ For hard-to-read locations
- ▶ LoRaWAN technology included

mioty® for Metering

SMART CITY APPLICATIONS   SMART METERING APPLICATIONS

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REFERENCE STORY RAGSOL

MIOTY® FOR INDUSTRY CUSTOMERS

RAGSOL is a spin-off of RAG Austria AG ("RAG"), with over 80 years of expertise in the oil and gas industry. Fully committed to a responsible and environmentally friendly use of natural resources, RAGSOL provides complete solutions for a more efficient operation of oil and gas fields.

EXPECTATIONS:
- ▶ Implementation of a mioty® network covering RAG's assets in Upper Austria (~7,200 km^2)
- ▶ Development of network operator solution and business model
- ▶ International transfer and scaling of business operations

SOLUTION:
Diehl Metering IoT Services
- ▶ Two-day workshop in Austria at RAGSOL to analyze the situation and

identify specific needs according to RAGSOL's expectations: fields of operation, relevant use-cases, potential business models.
- ▶ IoT Network Planning for RAGSOL: preparation of a mioty® network simulation (area determination, simulation scenarios and calculation basis)
- ▶ Implementation of a mioty® network in Upper Austria
- ▶ Integration of oilfield use-cases within the network

Diehl Metering has a proven track record in setting up mioty® pilot networks for smart city applications all over Europe. And thanks to our expertise across the entire utility value chain (hardware, software and consulting services) and our in-depth knowledge of utility operations, we can adapt our solutions and be your partner of choice for implementing mioty® for Metering networks in the field of smart metering.

WONDERING HOW TO START?

IOT SERVICES FOR MIOTY®/MIOTY® FOR METERING PROJECT

OUR OFFERS	IOT NETWORK PLANNING SERVICE	IOT IMPLEMENTATION SERVICE
▶ IoT networks connect multiple devices that exchange data with each other and offer new opportunities to make your business more flexible. ▶ We support you throughout your project by transparently mapping all processes and enabling you to better answer the needs of your end customers and citizens.	▶ In our IoT technology training, our experts first train you to understand the advantages and disadvantages of the standard IoT technologies available on the market. ▶ Diehl Metering plans your IoT network together with you in an iterative and collaborative way, based on your specific needs and the IoT use cases you want to bring into the field.	▶ Diehl Metering will support your business team to roll out your IoT network set-up projects – e.g. through the implementation of on-site solutions – and ensure their success. **On request after IoT network planning service**

INTERESTED? LET'S DO A WORKSHOP TOGETHER!

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www.diehl.com/metering

Empower a sustainable future