

Capital Markets Day

22 October 2015
Stuttgart, Germany



powered by



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Agenda 22 October 2015

- 09.00 Shuttle Service Hotel Mövenpick to site Alaufstieg
- 09.30 Presentations Management Board PORR AG
incl. Q&A Session
- 11.00 Break
- 11.15 Presentation with focus on Infrastructure
- 11.50 Presentation with focus on Qatar / KSA / Oman
- 12.30 Lunch at “Lean Room”
- 01.30 Presentation on construction site Alaufstieg
- 02.00 Site visit Alaufstieg
- 04.40 Shuttle Service Alaufstieg to Mövenpick and airport



PORR's Management Board



**Karl-Heinz
Strauss, CEO**

Extensive experience in European real estate, construction and finance:

- Entrepreneur with Austrian developer STRAUSS & PARTNER
- Various senior management positions with real estate firms of former Raiffeisen Zentralbank



**Christian B.
Maier, CFO**

Extensive experience in financial management of multinational companies:

- 14 years in CFO positions with Constantia Industries and UIAG – Unternehmensinvest AG
- Highly experienced in executing value-creating M&A strategies



**J. Johannes
Wenkenbach,
COO**

Comprehensive international construction experience:

- Most recently COO and Vice President of El Seif Group in Saudi Arabia
- Executive positions with international construction companies in South-East Asia and Germany

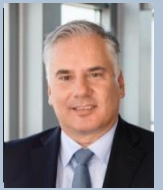
Biographies Speakers



**Rainer
Rengshausen**

Managing director division Tunneling Porr Bau GmbH

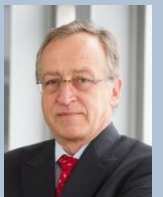
- More than 30 years of experience in civil construction projects
- Management positions in tunneling since 2000
- Since 2011 President of the German Tunneling Society and since April 2015 Member of the British Tunneling Society



**Thomas
Stiegler**

Member of the Executive Board – International Business

- Over 20 years international construction experience
- Several years high management positions (CFO and Executive Board Member) of Bilfinger Civil in Germany
- Since 2010 with PORR to develop the Middle East, based in Doha



**Hans
Köhler**

Managing director division Tunneling Porr Bau GmbH

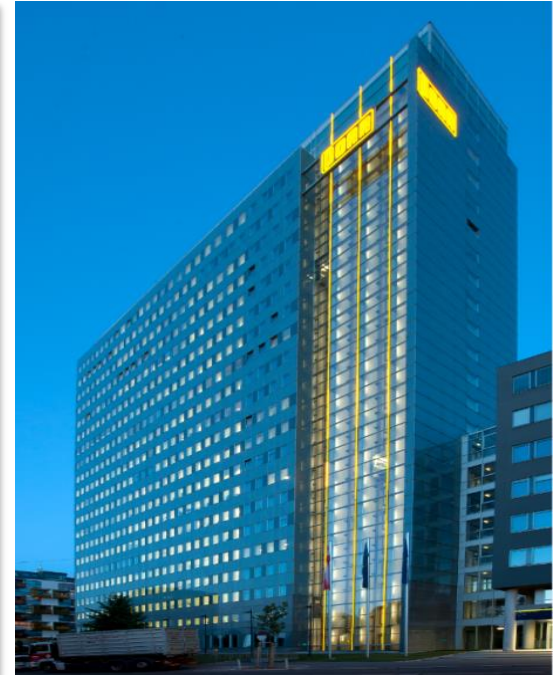
- Over 30 years of experience in international tunneling projects
- Until 1992 Vice President ATLAS Copco, mechanical rock excavation
- Since 1992 with PORR in several functions in tunneling projects with a strong focus on TBM-, shield- and pipe jacking projects

Latest news: NORWAY



The PORR Slogan

**We are a construction company and
will always remain a construction
company which builds as much as
possible by itself!**

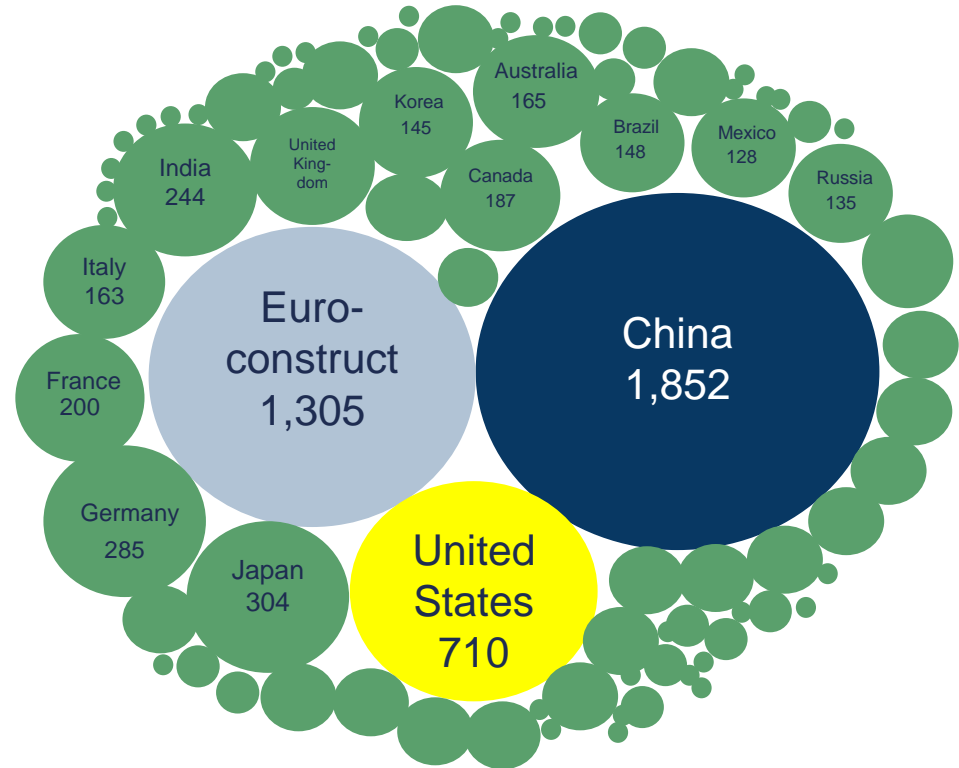
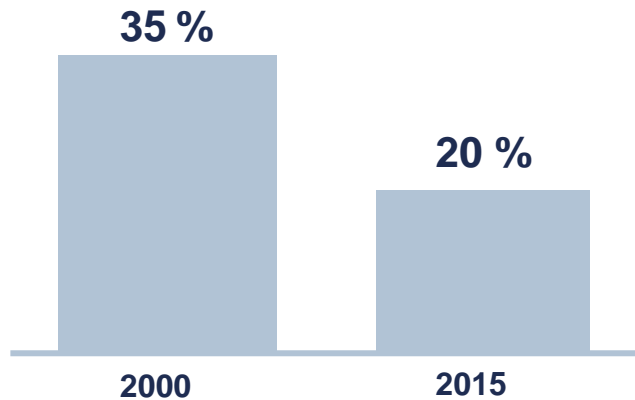


Construction sector at a global level

CONSTRUCTION OUTPUT in 2014 (EUR bn)

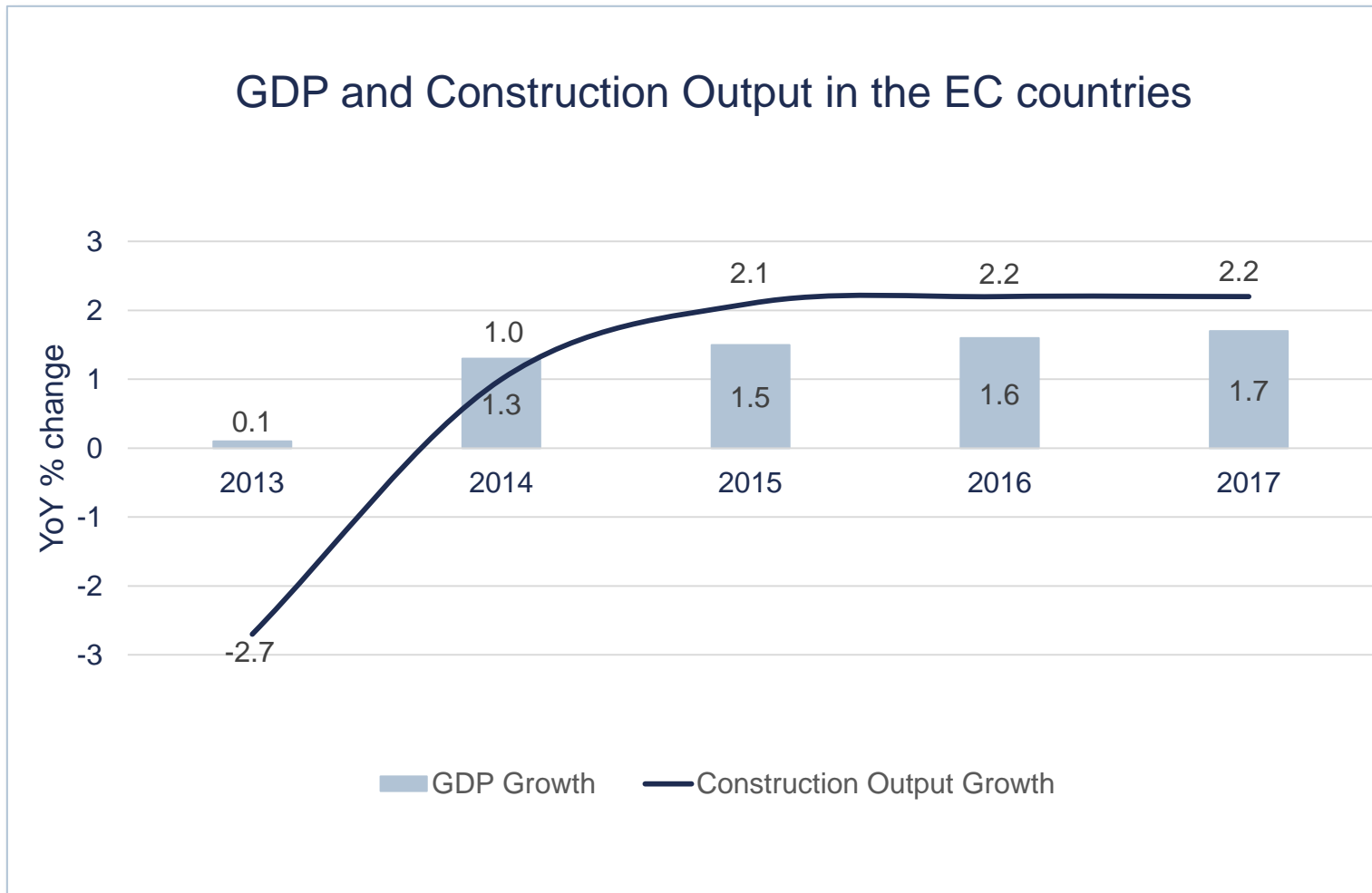
World: 6,250 billion euro

The 19 EUROCONSTRUCT countries represent 20 % in 2014



*Source: Euroconstruct Conference November 2014

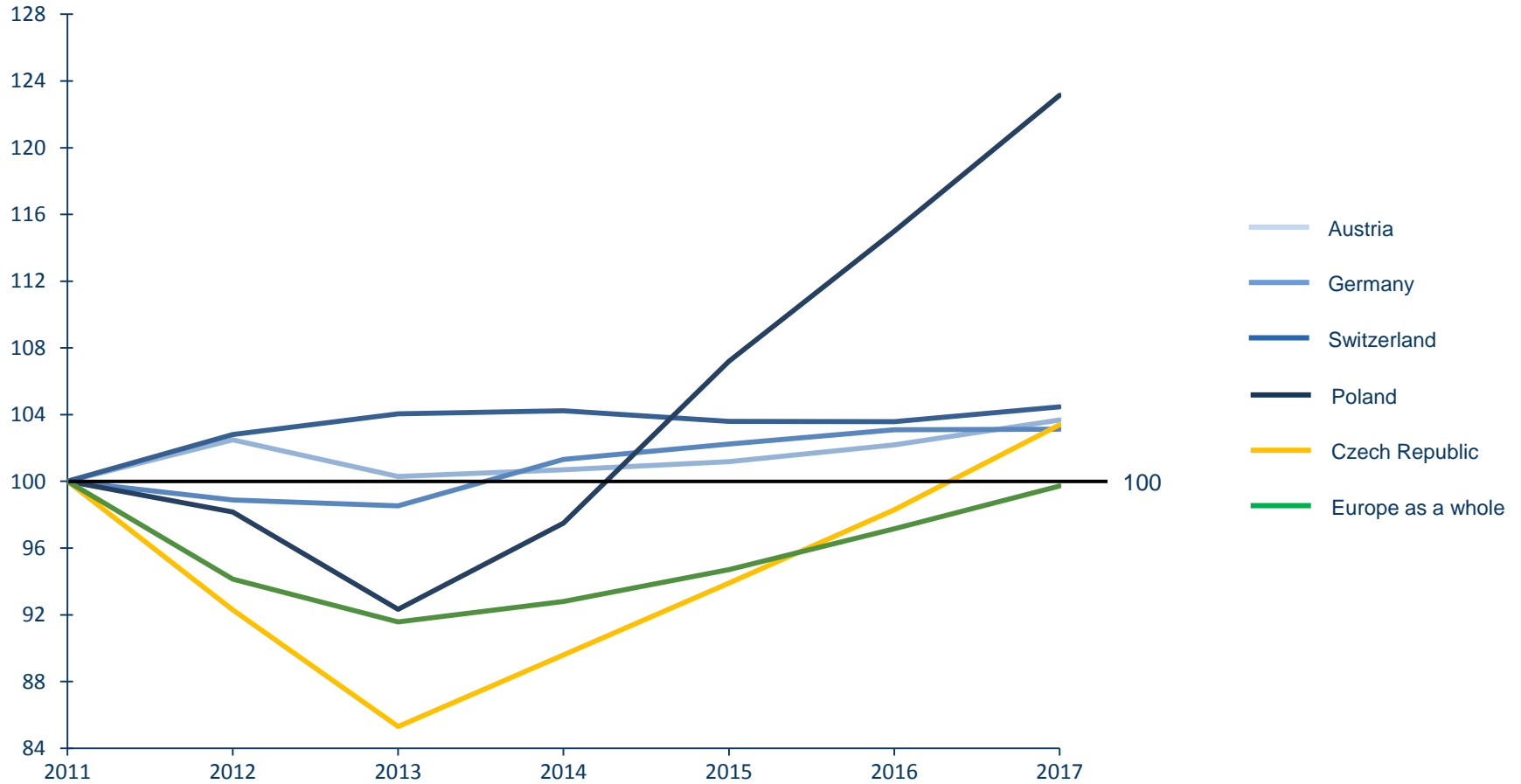
GDP vs. Construction Output



*Source: Euroconstruct Country Report June 2015



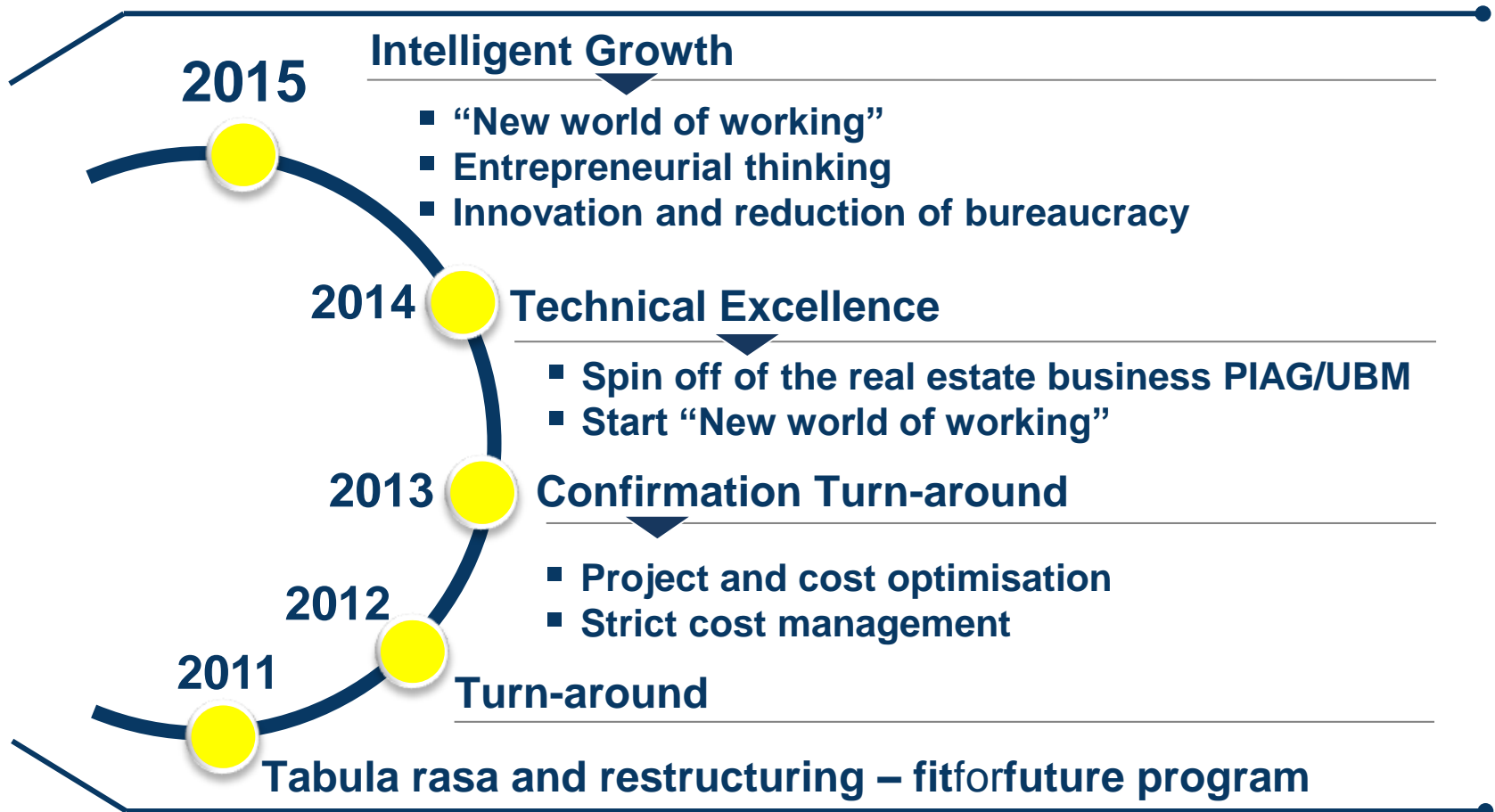
Market environment



*Source: Euroconstruct Conference November 2014



PORR timetable 2011 - 2015



How does “Intelligent Growth” work?

**Entrepreneurial
thinking**

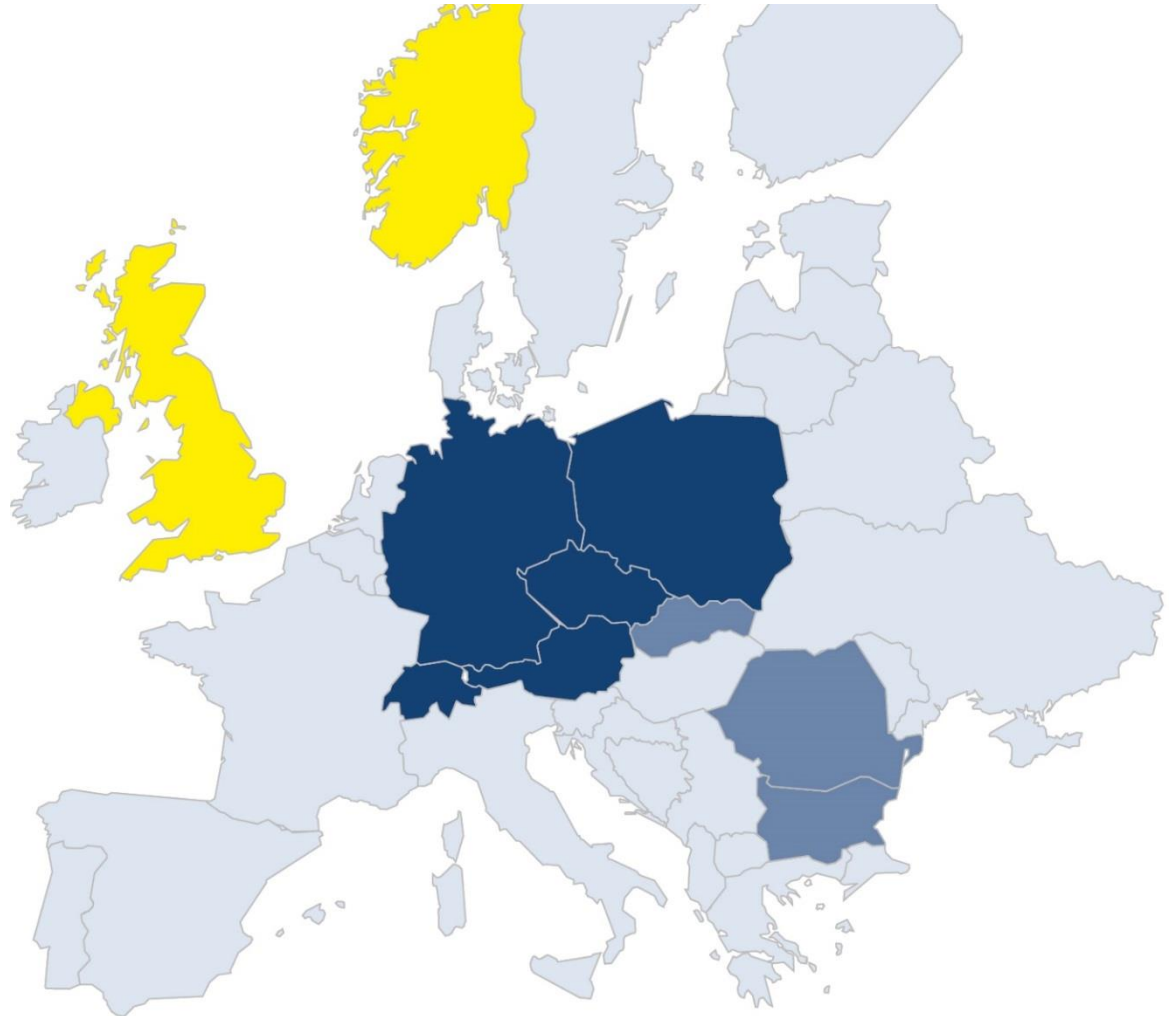
**Internal Value &
Cooperation**

Innovation

Customer relations

Which markets are we focused on?

- Home markets
- Project markets
- Target markets



Future trends in the construction industry

Demographic factors / Urbanisation

- **Urbanisation** – the future of cities - drives the need for building infrastructure such as housing, transportation infrastructure, hospitality, energy, etc.
- **Growing population**, changing demographic structure



Consolidation / Anticipating Tomorrow

- **Strengthening core and/or further diversifying via small and mid-cap companies**
- **Realising potential** through restructuring, economies of scale divesting non-core assets
- **Size, scale and pace**



Innovation & Digitalisation

- **Competitive advantage** through innovation
- Natural market entry barriers in terms of **size and IT infrastructure**
- **Digitalisation** of the construction process facilitated by topics such as **BIM** as a **key driver of the future** transformation



Sustainable Construction / Think Green

- Environmentally-driven changes in terms of **quality and sustainability**
- **Growing focus on energy efficiency** in all kind of buildings (new and existing) – increase the need for **innovative information technologies**

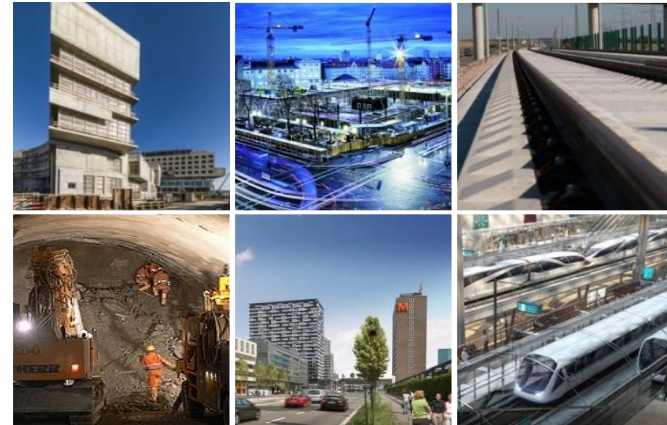


Digitalisation

- Leading role in the construction industry
- Conversion of hardware, large parts of our business processes are already virtualised ("Paperless Construction Site")
- Digitalisation well advanced, current priorities:
 - Communication (LYNC)
 - Cooperation (SharePoint)
 - Mobility (mobile devices)
- Mobilisation of business processes via mobile devices using Apps
- The aim is to further optimise processes in the back office

Top Player

- Only the best companies are successful and profitable
- Middle players will reach a break-even result at best
- Client orientation, long term client relationships
- Using the strengths of an owner driven company
 - Entrepreneurial, focus on opportunities
- Using the strength of the company in the market
 - Procurement, subcontracting, market knowledge



Best place to work

- Construction is people business
- Only the best companies will attract the best personnel
- Employee development
- Training, education, career development – PORR academy
- De-centralised structure – strengthening employees' own responsibility
- PORR has climbed to one of the TOP-10 employers in Austria



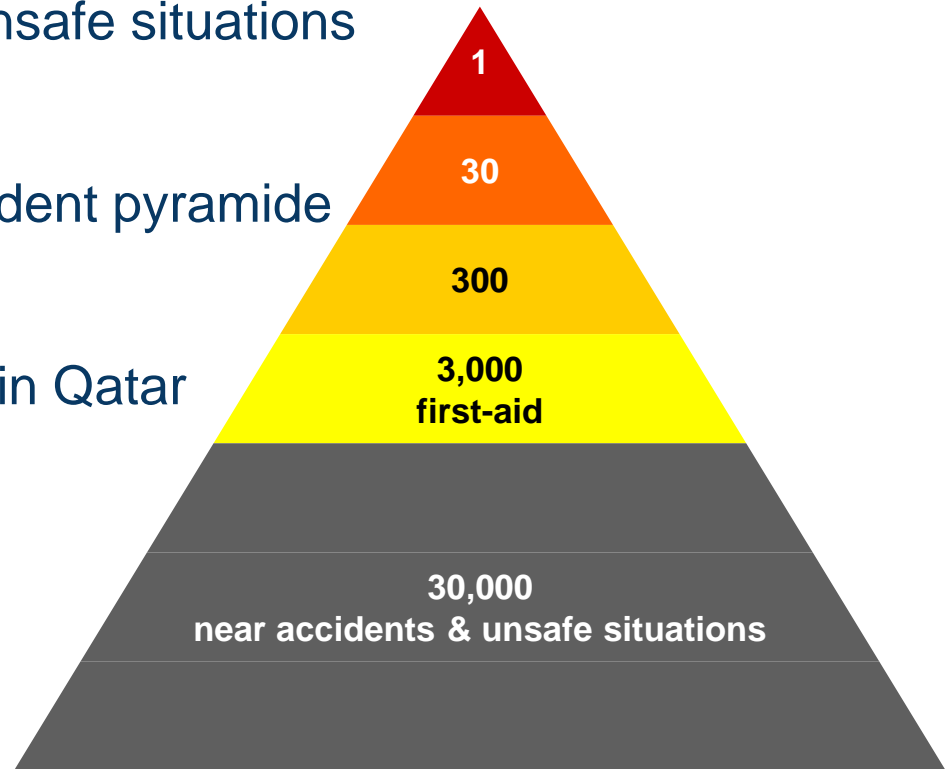
Innovation

- Front runner in BIM modelling
- IT supported applications on the construction site
- M2M equipment monitoring system
- SAP materials management supporting procurement optimization
- Technical innovation e.g. “Slab track Austria“, “New Austrian tunneling method“

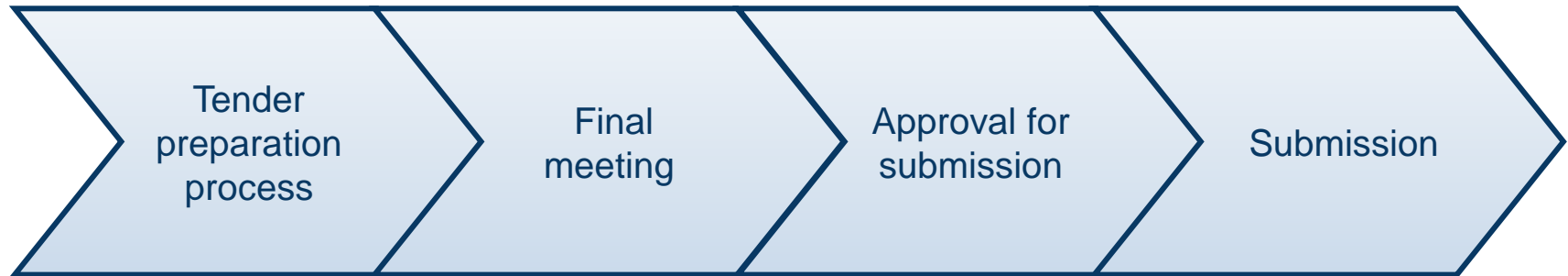


Health, Safety & Environment

- Focus in near accidents and unsafe situations
- Narrowing the base of the accident pyramide
- Excellent safety standards set in Qatar
- Highest labor camp standards

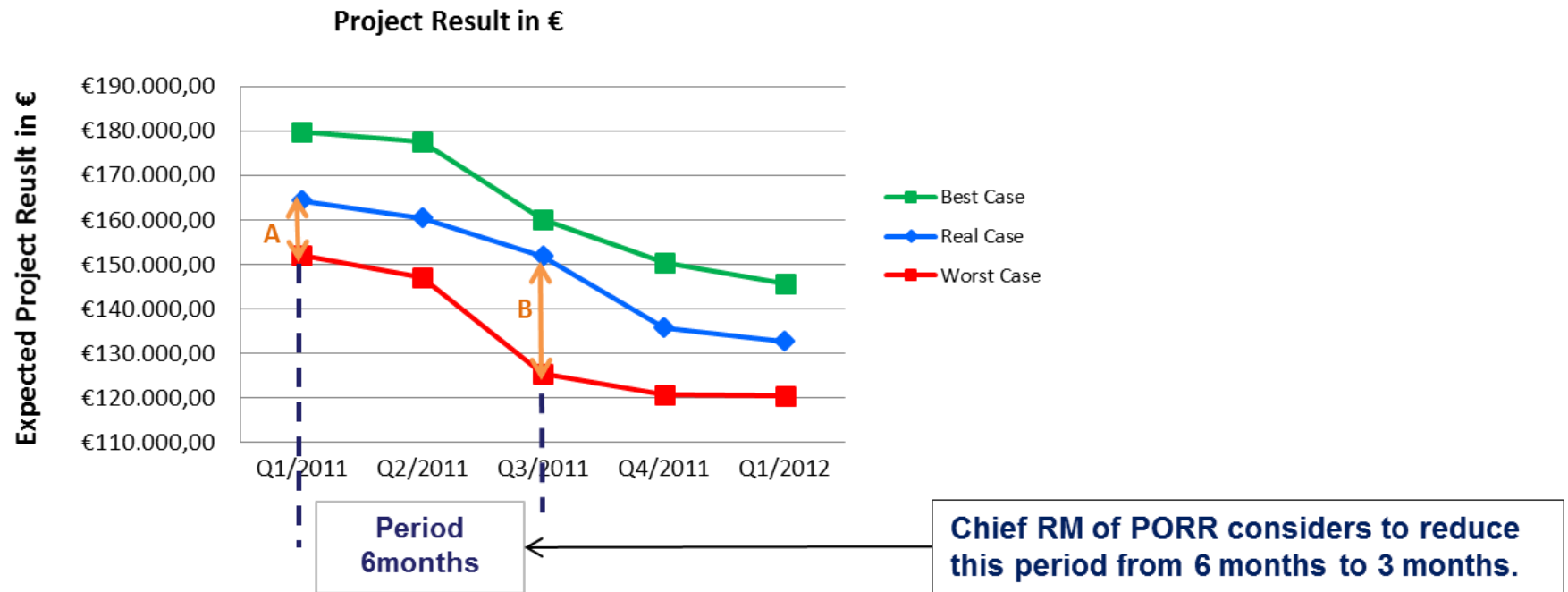


Risk management starts in the tender process

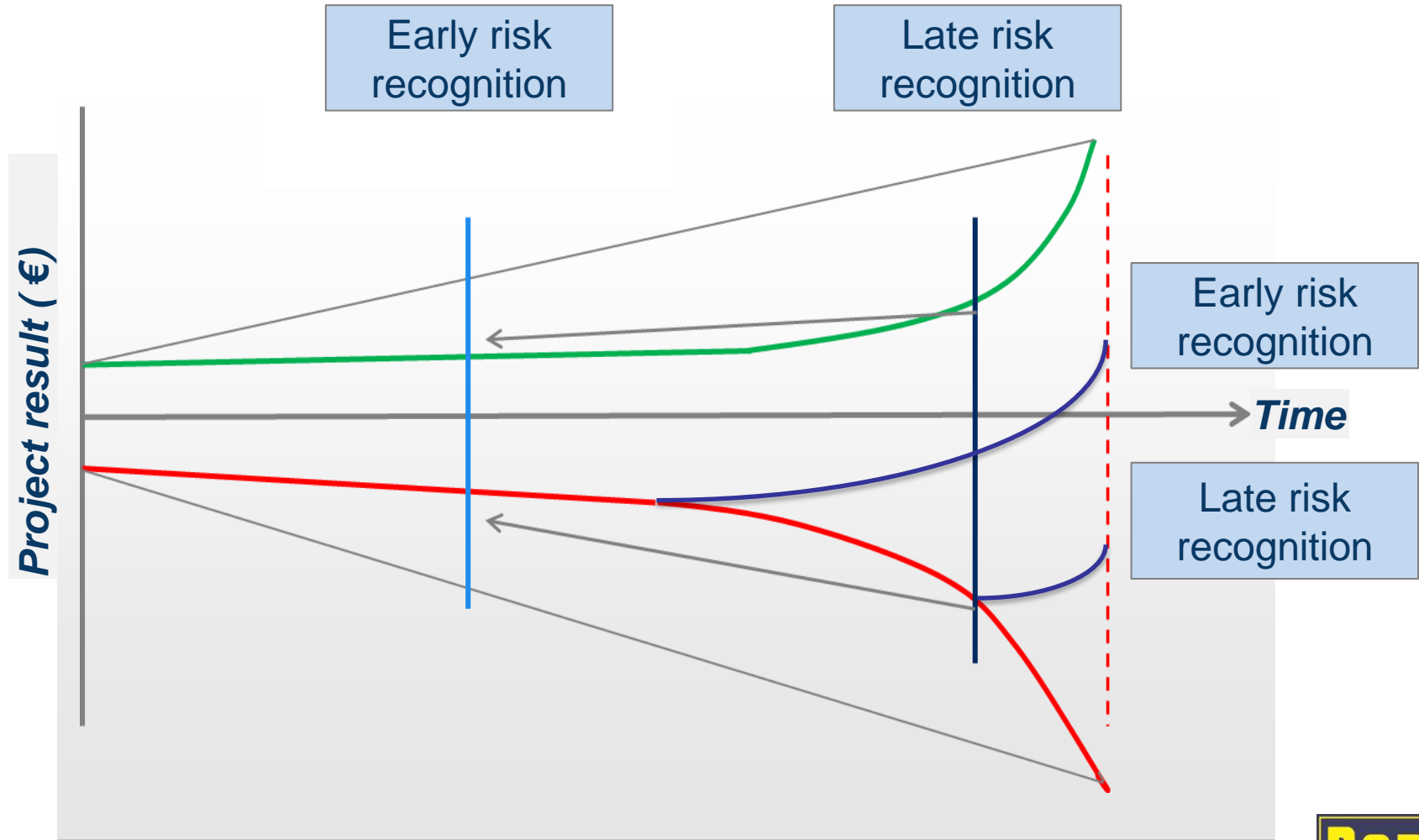


Criteria for classification as risky projects

- When the forecast is negative
- When payments due increase
- When the worst case deteriorates



Risk management: Early recognition



Highlights H1 2015

Stable Production Output

Production output **1,497mn Euro (+0.5%)**; stable high level of output for YTD period 2014 despite adverse weather conditions

Strong Order Situation

4.8bn order backlog; **+41%** (+659m) increase in **order intake** over all Business Units

Improvement of Operational Results

+27% improvement of Group EBITDA and **+16m EUR** on **EBT** level; increase in Group net income

Financial Policy and Net Debt Reduction

Reduction of net debt (-24%) and consequently also of refinancing costs compared to YTD period; clear and focused refinancing strategy

Growth Strategy in Home Markets

Aug 2015: **Acquisition of Bilfinger Infrastructure S.A.** was closed – strengthening market position in **Poland**

Capital Market

Share split of a ratio of **1:2** was carried out on Friday, 26 June 2015 at the Vienna Stock Exchange

Outlook 2015 Unchanged

Continuous growth in production output and earnings as per year end 2015

Consolidated Income statement¹

EUR thd

	2012	2013	2013 ²	2014	1H 2014 ²	1H 2015
Production output	2,905,634	3,439,092	3,162,079	3,474,885	1,489,212	1,497,045
Revenues	2,314,828	2,694,153	2,630,025	3,009,118	1,340,498	1,321,355
Material costs	-1,455,484	-1,761,030	-1,748,711	-2,026,001	-884,906	-849,248
Staff costs	-625,309	-682,646	-669,814	-752,960	-354,825	-373,383
Other operating results	-154,609	-135,472	-103,943	-140,779	-78,233	-68,238
EBITDA	103,837	154,731	146,614	156,424	43,467	55,565
EBITDA³ %	3.6	4.5	4.6	4.5	2.9	3.7
Depreciation	-50,028	-66,705	-65,736	-74,716	-30,867	-34,047
EBIT	53,809	88,026	80,878	81,708	12,600	21,518
EBIT³ %	1.9	2.6	2.6	2.4	0.9	1.4
Financial result	-31,801	-27,533	-21,287	-15,608	-11,638	-4,396
EBT	22,008	60,493	59,591	66,100	962	17,122
EBT³ %	0.8	1.8	1.9	1.9	0.1	1.1
Taxes	-4,015	-7,908	-7,059	-17,542	1,171	-6,290
Periodic result	17,993	52,585	52,532	48,558	5,090	10,832

1 Capitalized own work and share of profit/loss of associates not shown required by IFRS; actually reported values according to IFRS may deviate

2 Restated excl. discontinued operations

3 Margins calculated on production output



Consolidated Balance Sheet

EUR thd

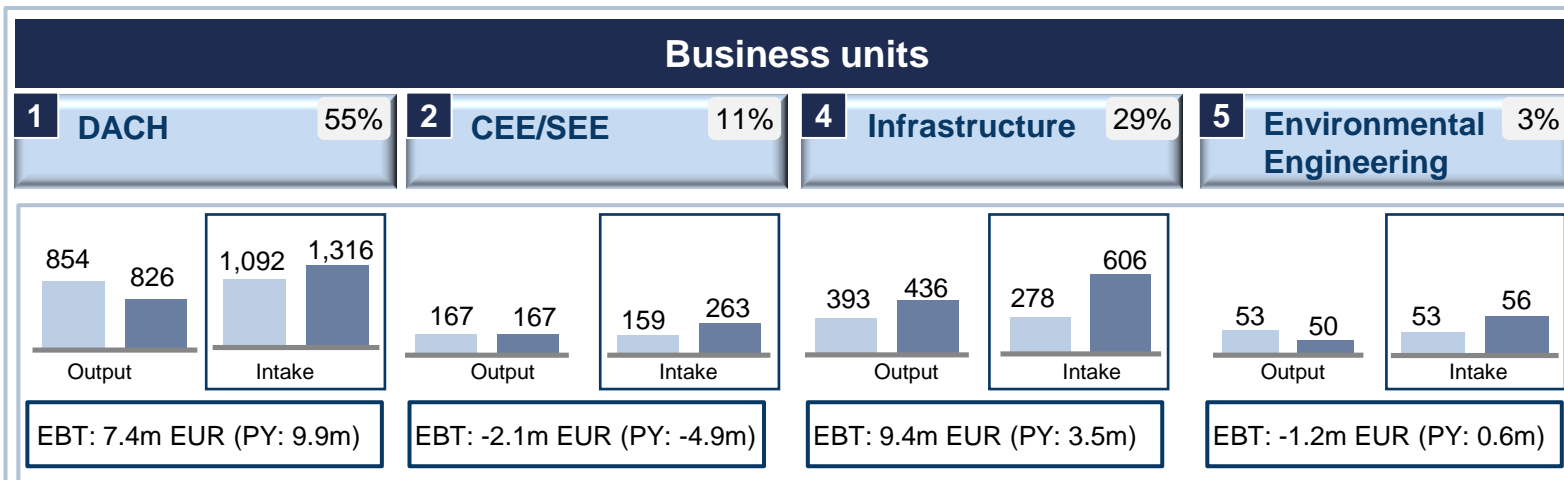
		<u>31.12.2012</u>	<u>31.12.2013</u>	<u>31.12.2014</u>	<u>30.06.2015</u>
Assets	Long-term assets	1,101,407	1,068,659	728,013	782,653
	Short-term assets	959,334	1,227,811	1,418,017	1,152,022
	Total assets	2,060,741	2,296,470	2,146,030	1,934,675
Liabilities & equity	Equity (incl. non-controlling interest)	322,553	347,662	385,171	369,966
	Long-term liabilities	595,591	668,692	408,830	419,433
	Short-term liabilities	1,142,597	1,280,116	1,352,029	1,145,276
	Total assets	2,060,741	2,296,470	2,146,030	1,934,675
Ratios	Net debt¹ (EUR m)	586	357	-65	305
	Equity ratio (%)	15.7	15.1	18.0	19.1

¹ Bonds plus financial liabilities less cash and cash equivalents



Four Major BUs Delivering Value Added Along the Value Chain

...% 1H 2015 share of production output



1H 2014
1H 2015

#1 in Austria	Focus on selective projects	Strong technical leadership	Active in niches
<ul style="list-style-type: none"> Output influenced by: <ul style="list-style-type: none"> › Longer winter period and heterogeneous development throughout Austrian regions › Growth in GER/CH High level in order intake and order backlog <ul style="list-style-type: none"> › New projects like Bavaria Towers, Hotels & Residential project in Freiburg 	<ul style="list-style-type: none"> Output stable, affected by increased investments in CZ, full capacity roll out in Romania New prestige large projects as Spital Prokocim, Hotel Marriott Kecie, Office Building in PL Intelligent Growth via acquisitions: Bilfinger Infrastructure closed in August 2015 	<ul style="list-style-type: none"> Increased output due to large scaled projects as Green Line/DOHA, KAT3, Stuttgart 21 Doubling order intake – projects as Slab Track in Qatar, two tunneling projects (Ceneri, Albula in CH) Underlays high volatility due to the large scale project business 	<ul style="list-style-type: none"> Output decreased due to scheduled completion of the project “Power plant Voitsberg” Order intake increased due to new projects whilst utilizing along the whole value chain (Prajo acquisition)



Intelligent Growth

- PORR's annual growth consists of organic growth and **growth through M&A activities** at a ratio of approximately 50/50 which is planned to continue in the future
- In the last years PORR **acquired** (parts of) **various small and mid size players** in its **home markets** to optimize its value chain and strengthen its regional presence
 - Teerag-Asdag (AT)
 - TKDZ GmbH (DE)
 - Nägele Tiefbau (AT)
 - Grund- Pfahl- und Sonderbau GmbH (DE)
 - Stump Spezialtiefbau GmbH (DE)
 - Stump-Hydrobudowa Sp. z o.o. (PL)
 - Stump – Geospol s.r.o. (CZ)
 - Parts and teams from ALPINE Bau GmbH
 - Geotechnik Systems GmbH
 - Prajo Group (AUT)
 - Goidinger Bau GmbH (AUT)
 - TB Betonwerk Zams GmbH
 - Bilfinger Infrastructure S.A. (PL)
- With the **spin off of the real estate and development activities** and the stake in UBM Realitätenentwicklung AG, PORR managed to **focus** its portfolio on pure construction (related) business

Key data regarding acquisition of Bilfinger Infrastructure S.A.

Details on the Transaction:

- Contracting Partner:
 - PORR Bau GmbH
 - Bilfinger Infrastructure S.A.
- Signing Date: 11 June 2015
- Purchase Price: 21.5m EUR
- Closing Date: 14 August 2015

HEADQUARTERS & SITES



Two strong Polish players as the ideal complement

Door opener to the Norwegian infrastructure market

BUSINESS AREAS

- Road & bridge construction
- Civil engineering
- Energy construction

Financial Goals

**Production output in excess of PLN 1bn |
~ EUR 250m**

Following diversification strategy

EBD target: 3%

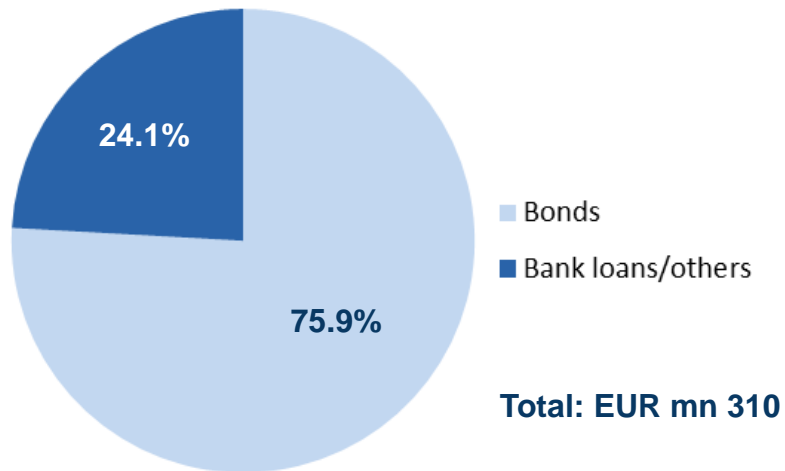
Positive cash flow – without any external financing

Financing Strategy and Policy

- **Key target** is a stable and sustainable level of **liquidity** at optimised costs
- Targeting an implicit **investment grade** rating and an **equity ratio 20-25%**
- Broad range of financing instruments with a strong group of **core banks** and proven access to the **Debt Capital Markets**
- **Factoring** as an important and attractive financing source for PORR
- By leveraging on a broad spectrum of financing instruments **dependency from the banking market** and therefore from possible negative effects as a consequence of current regulatory framework (e.g. Basel III) **can be reduced**
- **Efficient risk management** via **derivative transactions** if appropriate with the objective to manage its interest rate- and currency-risk within approved risk limits
- As construction business, especially in infrastructure, is considered as a **long term business, financing should reflect** those tenors

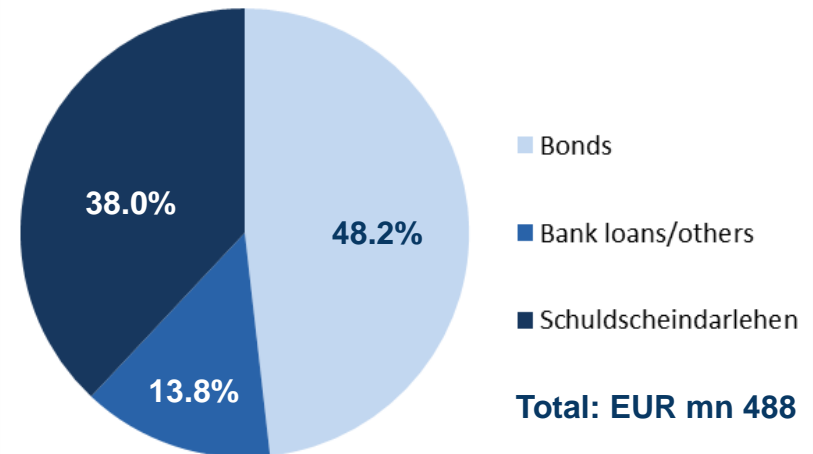
Average coupon of interest bearing debt, i.e. bonds (nominal value), bank loans/others and Schuldscheindarlehen

31.12.2014



Average coupon: 4.6%

30.09.2015

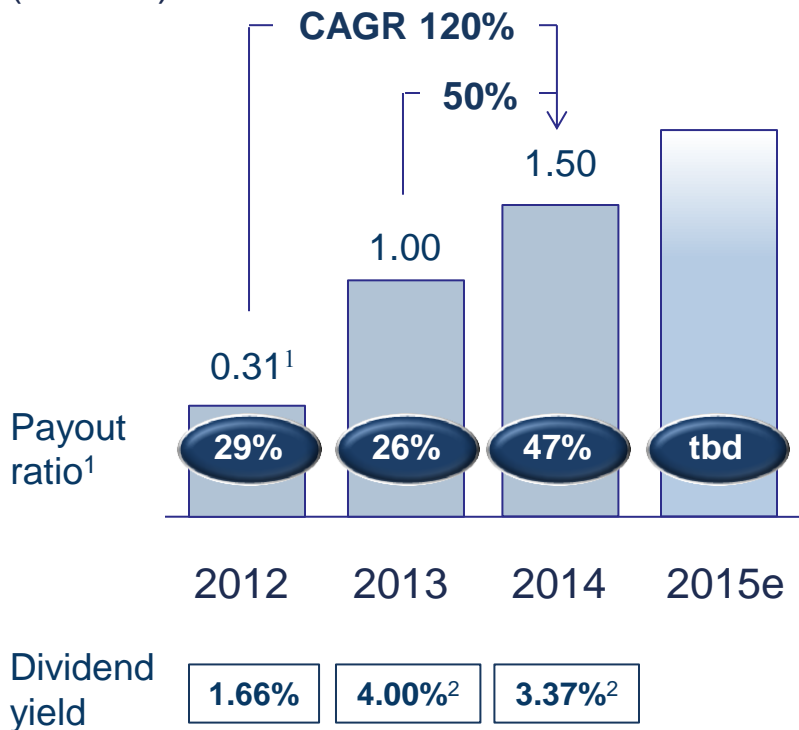


Average coupon: 3.6%

Creating shareholder value

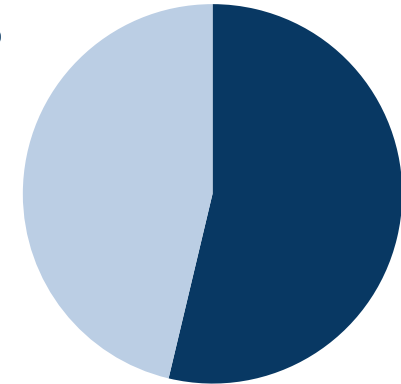
Dividends

Dividend per share
(in EUR)



Shareholder Structure

■ **Syndicate: 53.7%**
Ortner-Group,
Strauss-Group



■ **Free Float: 46.3%**
thereof:

- Renaissance Construction AG: 5.7%
- WIENER STÄDTISCHE Versicherung AG
Vienna Insurance Group: 4.5%

¹ Adjusted to number of shares 2013 to allow better comparison

² Restated excl. discontinued operations

Key takeaways – PORR Capital Markets Day

Intelligent Growth

Concentration on home markets and core business

Digitalisation

Leading the digital transformation in the construction industry

Operational Excellence

Innovation and high-tech solutions

Risk management

Assessment of risks, estimation of chances

Employer Brand

PORR is „Best place to work“

Innovation

Know-how

Teamgeist

Confidence
makes the
difference.



Strategy – Q & A Session



powered by



Focus Infrastructure

Rainer Rengshausen, Managing Director Tunneling



powered by



Content

- Markets & Strategy
- Civil Engineering and Road Construction
- Ground Engineering
- Tunneling
- Trackworks



Markets & Strategy for Infrastructure projects

Target markets

- Project approach / strict project selection
- Clear rules for market entry:
Project – Partner – Team

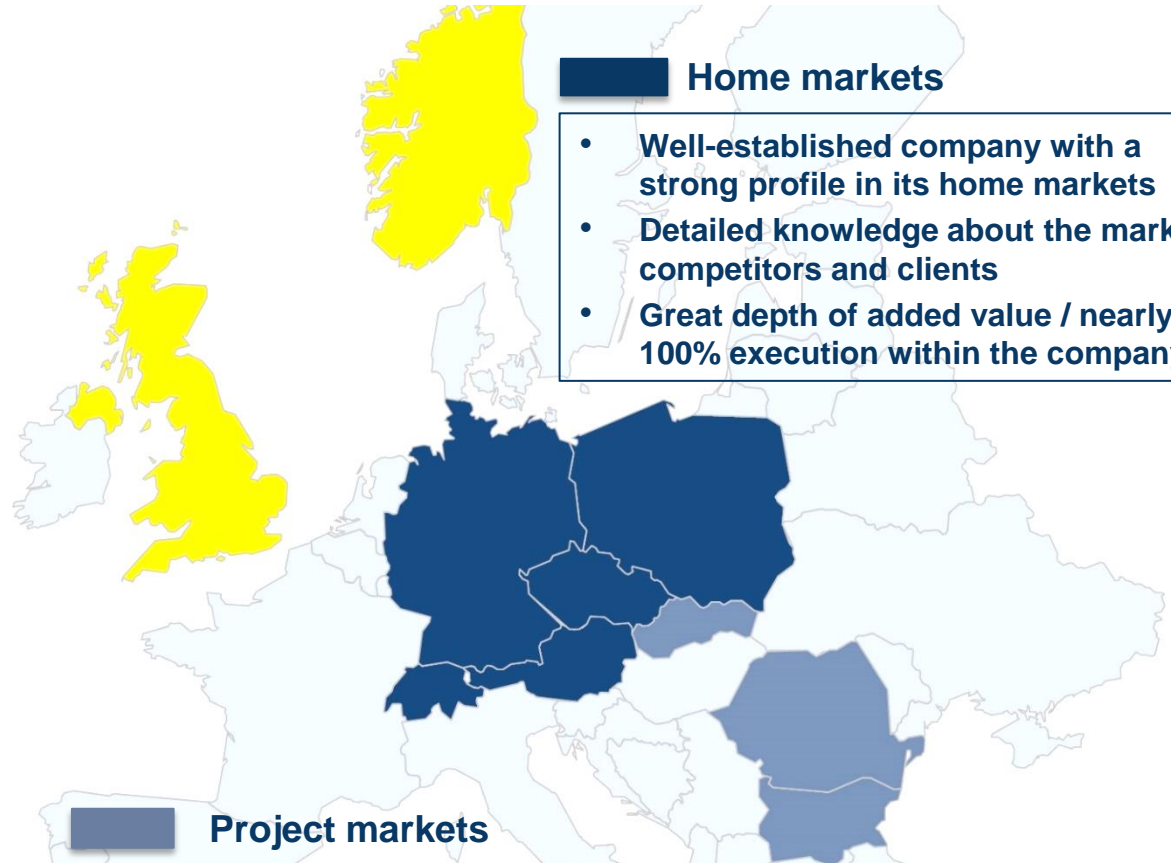


Home markets

- Well-established company with a strong profile in its home markets
- Detailed knowledge about the markets, competitors and clients
- Great depth of added value / nearly 100% execution within the company

Project markets

- Established company in selected areas of expertise
- Good knowledge about the markets, the competition and the clients in these selected areas of expertise
- Strict selection of projects
- Strategic partnerships

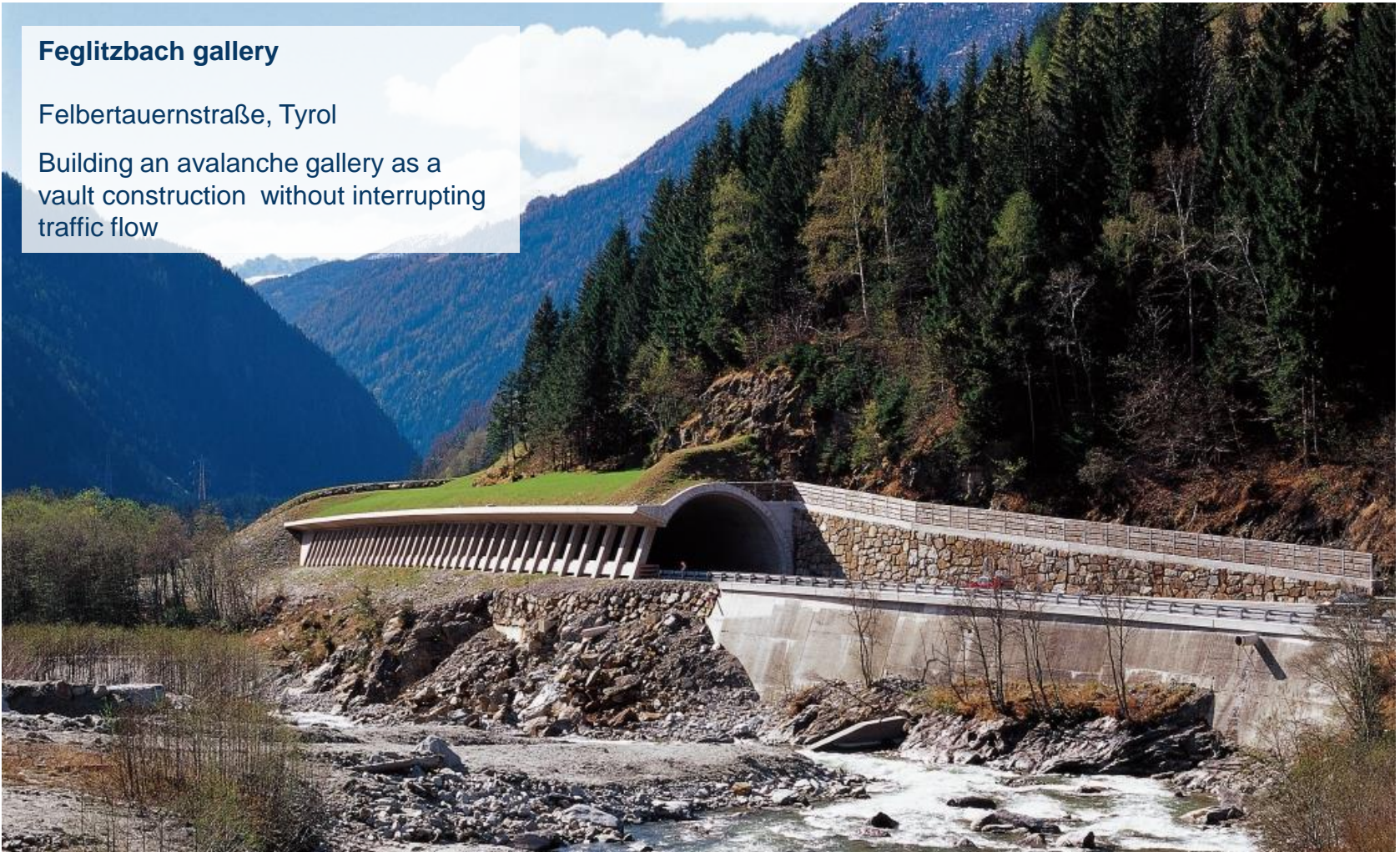


Civil Engineering and Road Constructions

Feglitzbach gallery

Felbertauernstraße, Tyrol

Building an avalanche gallery as a vault construction without interrupting traffic flow



Civil Engineering and Road Constructions



Civil Engineering and Road Constructions

Prater traffic hub

Vienna

Infrastructure, road construction

Bridge surface: 13,000 m²

Construction period: 2014–2016



Civil Engineering and Road Constructions

Emscher Sewer Rhine-Herne Castrop-Rauxel, Germany

Construction of a new outflow structure in reinforced concrete to replace the old culvert.

The old culvert was removed upon completion of the new outflow.



Civil Engineering and Road Constructions



Main Station
Vienna

Central hub on the Trans-European rail network

Around 1,000 trains and 145,000 people per day

Ground Engineering

Diaphragm Walls



2004: Large scale sewage project, Vienna

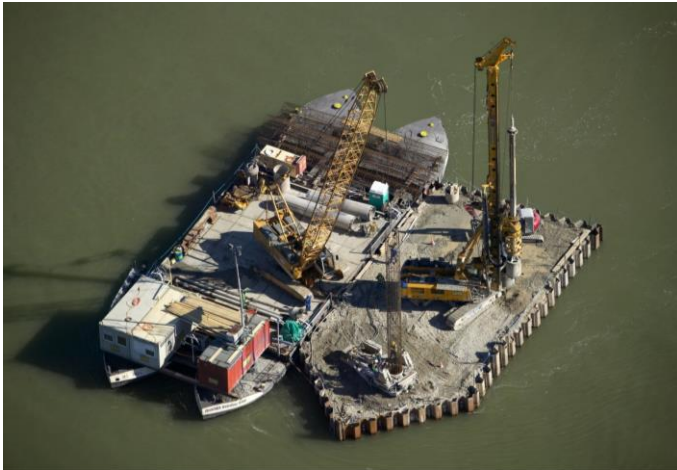
2006: Metro Line U3, Munich



2010: Danube City Tower 1, Vienna

Ground Engineering

Bored Piles



2009:
Sava Bridge,
Belgrade (Serbia)



2006: Railway Bridge
over the River
Danube, Krems (AT)



2010:
DC 1 Tower
CFA piles, Vienna
(Austria)



2010:
Main Railway
Station, Vienna
(Austria)

Ground Engineering

Jet Grouting



2008: Palais Liechtenstein in the heart of Vienna



2007:
ÖBB
Railway
Bridge



2006:
Residential
Building
in
Vienna

Ground Engineering

Sheet Piles & VIB Walls

1998:
PORR
Office
Building,
Vienna



2008:
Residen-
tial
Building,
Munich



2006:
Brenner
Railway,
Tyrol



2005: Brenner Railway – Cut and Cover Tunnel



2009: Funder Carinthia



2006: HPP Danube,
Greifenstein

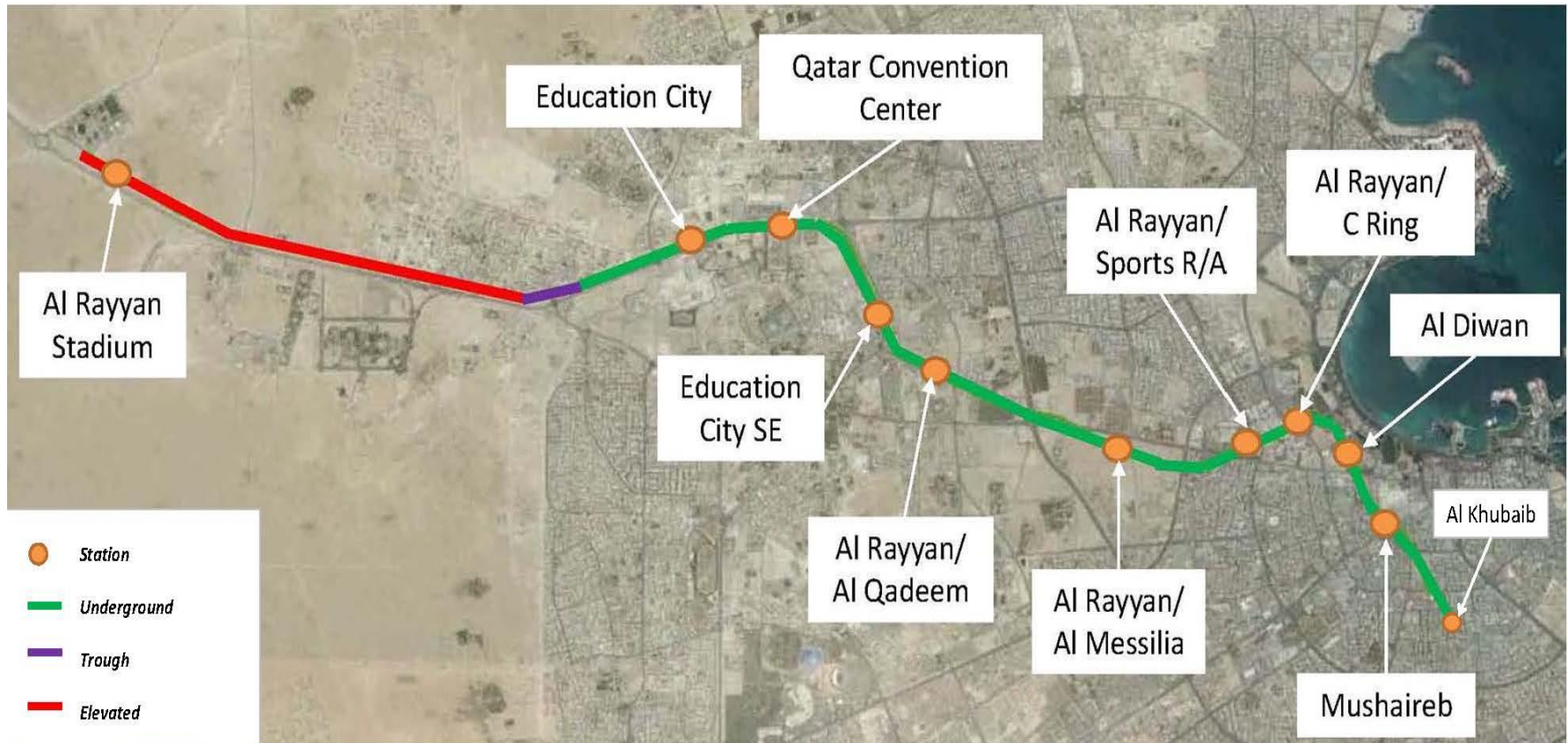
Ground Engineering

Anchoring, Soil Nailing, Micropiling, Soil Mixing



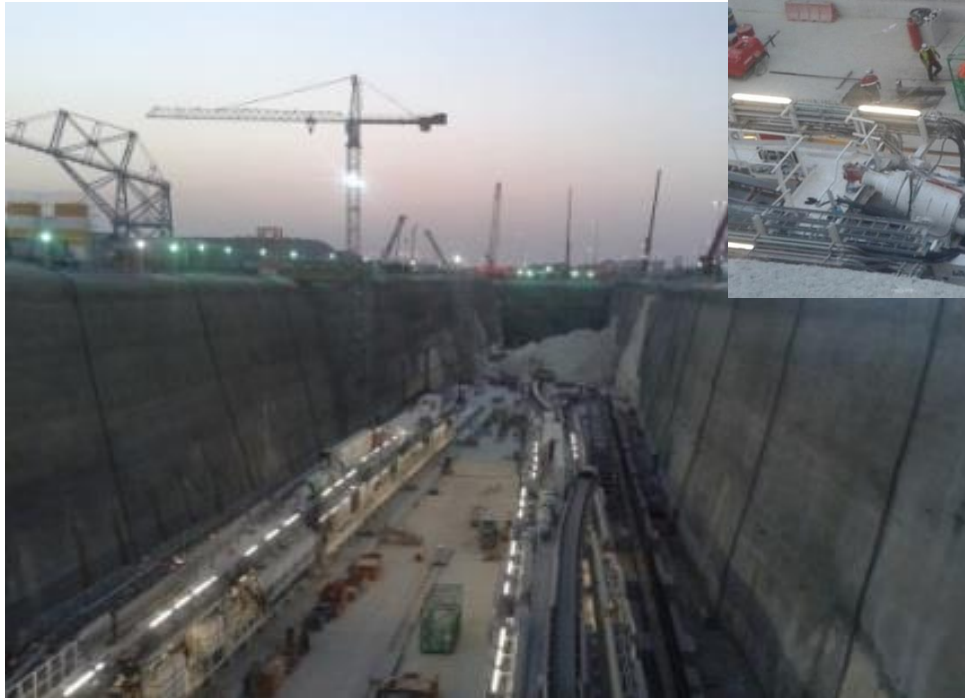
Tunneling

Metro Doha Green Line



Tunneling

Metro Doha Green Line



Tunneling

Tunnel “Albaufstieg”

NBS PA 2.2 Bahnprojekt Stuttgart-Ulm Albaufstiegstunnel
Baden-Württemberg, Germany

Two single-track tunnel tubes (L = 8.8 km each) were constructed. 2.8 km of each tunnel were TBM-driven. 6 km of each tunnel were conventionally driven.



The works included connecting structures, temporary access adits and broadening zones.



Tunneling

Fildertunnel, Tunnel “Ober- / Untertürkheim”

Stuttgart 21 – Lot 1A Fildertunnel

Stuttgart, Germany



Two single-track tunnel tubes were constructed with a length of 9.3 km each.

7.7 km of each tunnel were mechanically driven by using a multimode TBM.

1.6 km of each tunnel were conventionally driven.

Stuttgart 21 – Lot 1B Tunnel “Ober-/ Untertürkheim“

Stuttgart, Germany



Construction of two single-track tunnel tubes of 5.6 km length each. The tunnel was conventionally driven with “drill and blast” and excavators.

Cross passages, shaft structures and open cut building pits were constructed.

Tunneling

“Koralmbahntunnel” KAT 3

Koralmtunnel – Lot KAT 3

Carinthia/Styria, Austria

Tunneling: 23 km
(12 km TBM, 11 km conventional)

Construction period: 2013–2020



Tunneling

Emscher Sewer Tunnel “AKE BA40”

Emscher canal – Lot 40
Bottrop, Germany

Europe’s largest wastewater project
Tunnel tubes: 20 km, shafts: 14
Constr. period: 2013–2018



Trackworks

Slab track system – Slab Track Austria

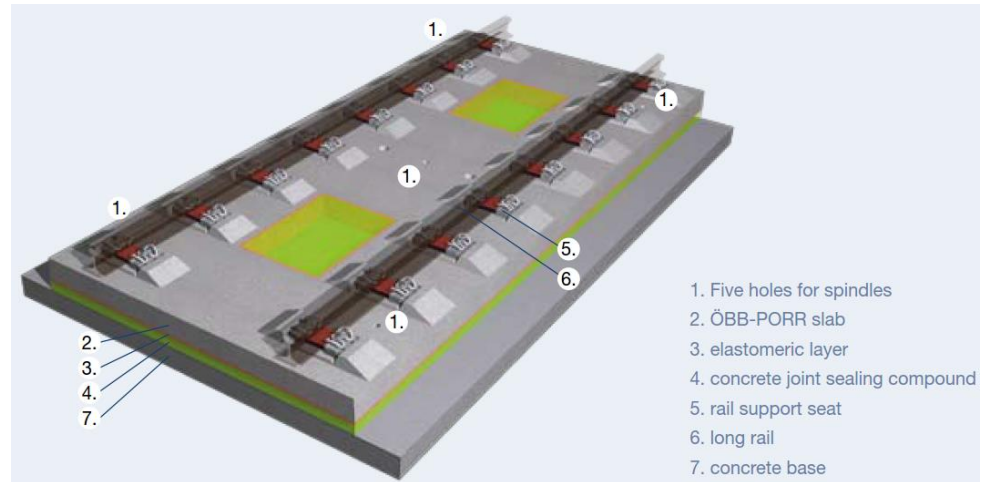
Jointly developed by the Austrian Railway Corporation (ÖBB) and PORR.

Slab Track Austria **STA**, also known as ÖBB–PORR elastically supported slab. It has been the standard slab track system in Austria since 1995 and has been built in Germany since 2001.

Key Facts:

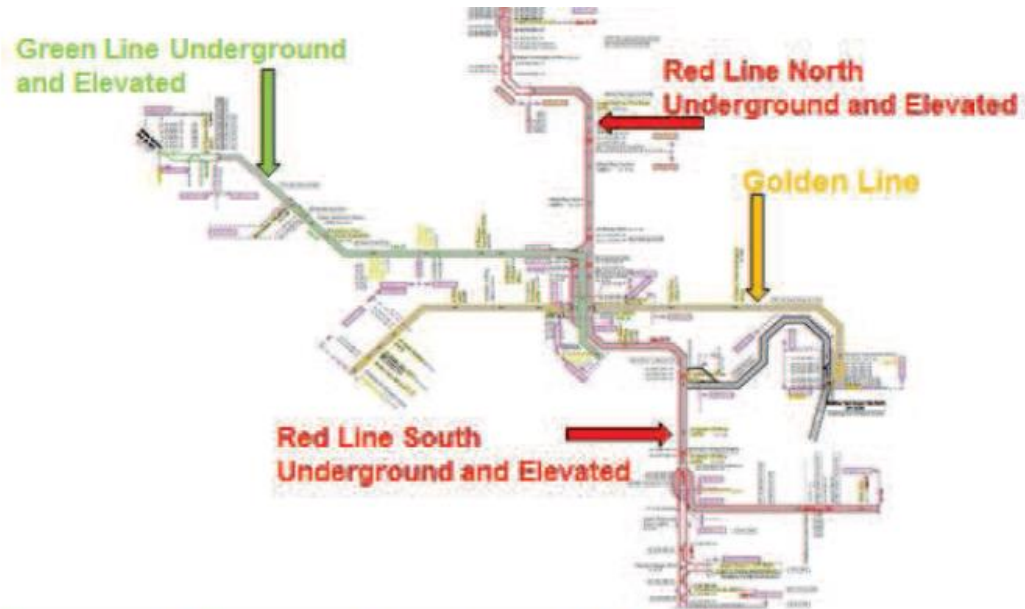
- maintenance-free
- reduced structural-borne noise and vibration
- installation in limited space conditions possible
- fast, accurate installation and less labour
- simple adjustment, repair and replacement
- reliable, high fabrication quality
- permission for $V = 350 \text{ km/h}$

582 km of STA installed in Austria, Germany, Slovenia, Czech Republic (1998-2014)



Trackworks

Metro Doha Green Line



Location	Under Ground	At Grade	Elevated	Total
Red Line North	28,214 m	8,518 m	4,452 m	41,184 m
Red Line South	37,780 m	2,044 m	12,780 m	52,604 m
Green Line	39,726 m	1,721 m	5,087 m	46,534 m
Gold Line	31,678 m	-	-	31,678 m
Grand Total	137,398 m	12,283 m	22,319 m	172,000 m

Trackworks

High speed line VDE 8.2 Erfurt-Halle/Leipzig



Trackworks

Berlin Main Railway Station

**Berlin Main Railway Station
East-West- and North-South-Connection**
Berlin, Germany

Slab Track System for main station and
connecting bridges and tunnel



East-West Connection: STA on 25 bridges, 4 turnouts in slab track, 6 rail expansion joints (breather switches) and 50 track transition constructions (construction period 2001-2002).

North-South Connection: STA implemented on 9 km tunnel (construction period 2002-2006).



Trackworks

Tauern Tunnel + Lainzer Tunnel



Tauern Tunnel

Austria

10 km modernisation (STA) of both tracks.
Constr. period 2002-2003.

Lainzer Tunnel (Final Stage)

Vienna, Austria

Implementation of 18 km STA

Constr. period 2010-2012



Infrastructure – Q & A Session



powered by



Focus Qatar / KSA / Oman

Thomas Stiegler, Member Executive Board - International



powered by



Market Overview GCC

	QATAR 	KSA 	OMAN 	UAE 
Total area:	11,610 km ²	2,149,690 km ²	309,500 km ²	83,600 km ²
Population (2014):	2.2 m	30.8 m	4.1 m	9.3 m
Capital:	Doha	Riad	Maskat	Abu Dhabi
GDP (2014)*:	210 bn USD	752.5 bn USD	77.8 bn USD	401.6 bn USD
GDP growth (2014):	6.1 %*	3.6 %*	2.9 %*	3.6 %*
Market entry:	2012	2013	2013	2013
				

*Source: WKO, July 2015

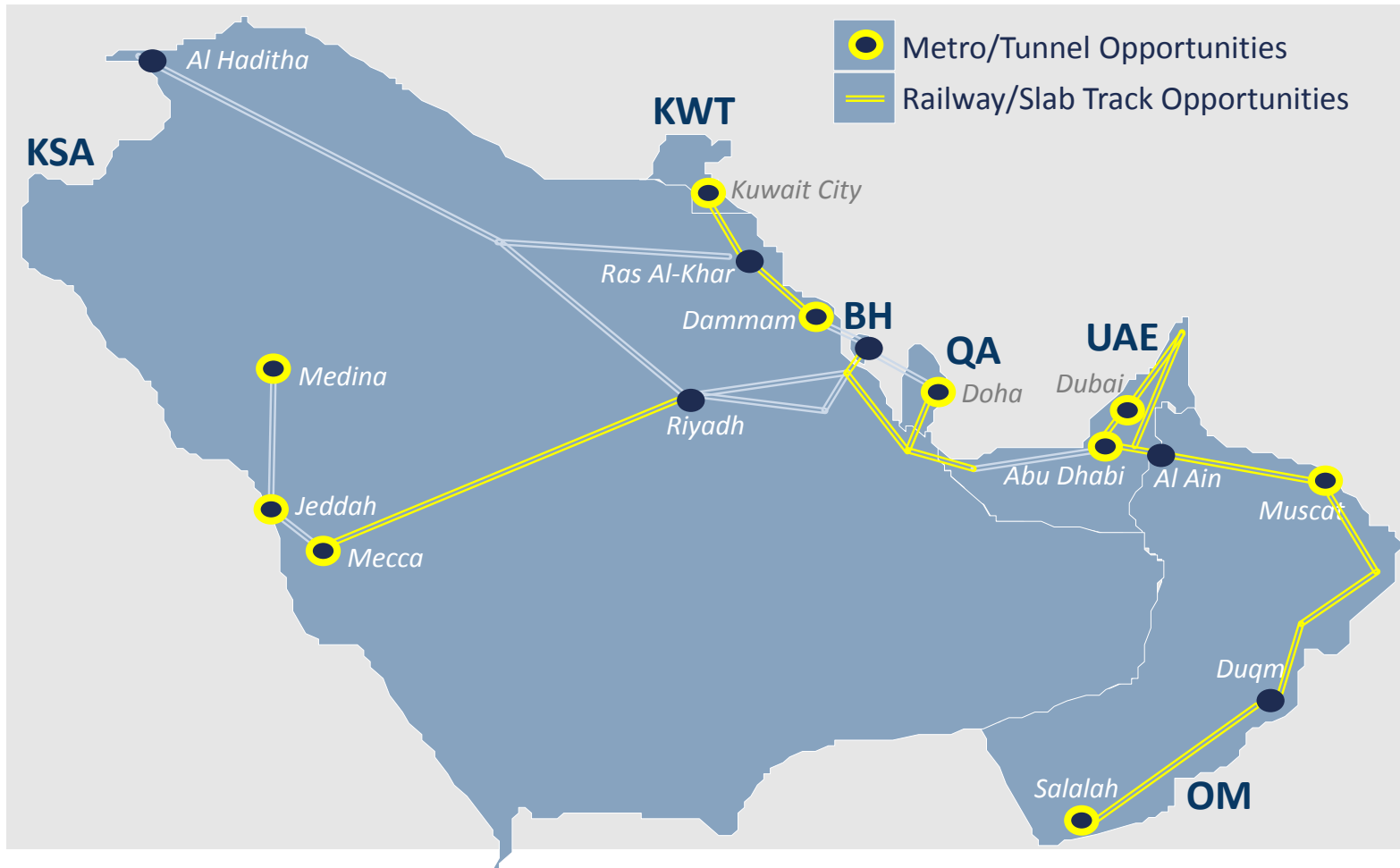
Strategy – PORR International

Rapid expansion: Core competences in tunnels and railways, technology driven and focusing on major projects



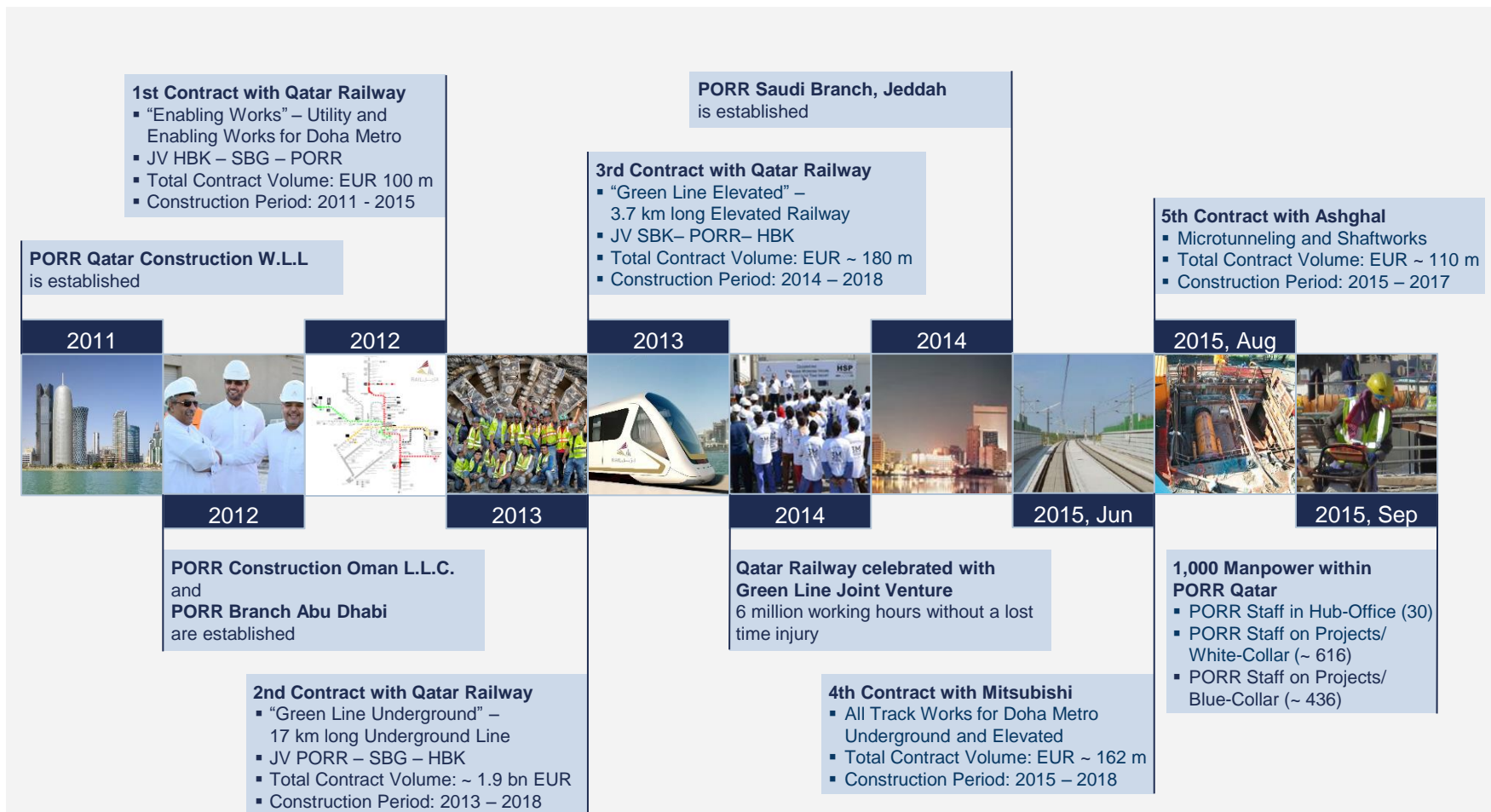
Strategy – PORR International

Huge potential in tunnels and railways

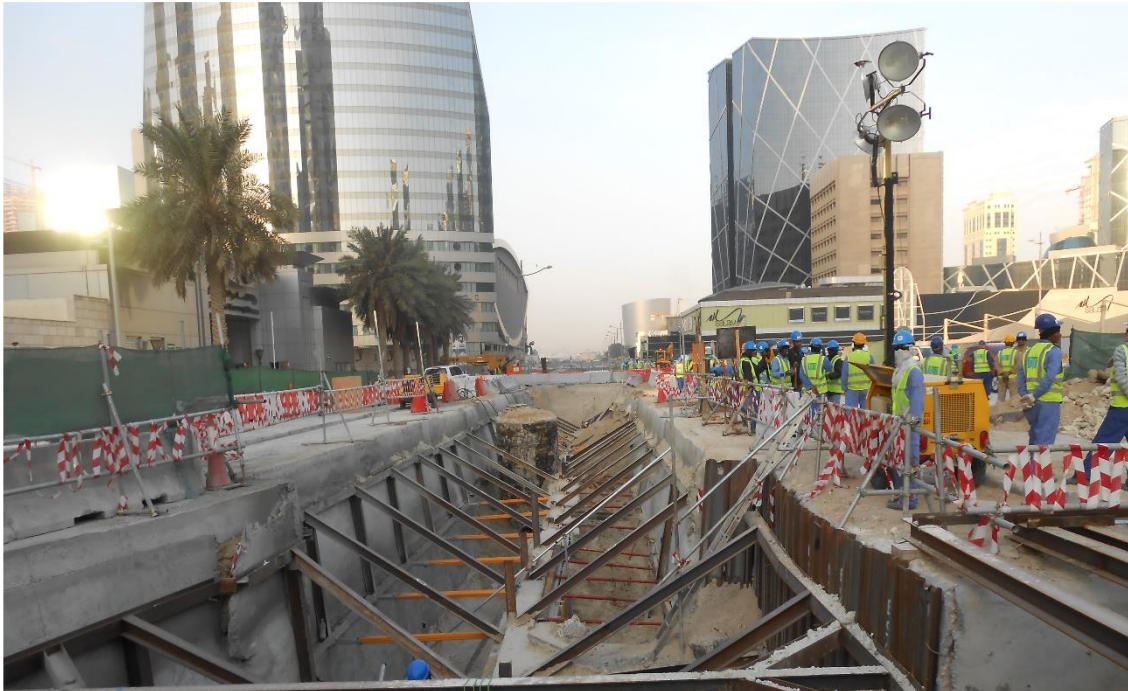


Footsteps into GCC markets

Massive construction expansion – high demand in PORR Technologies



Enabling Works for Metro Doha, Qatar

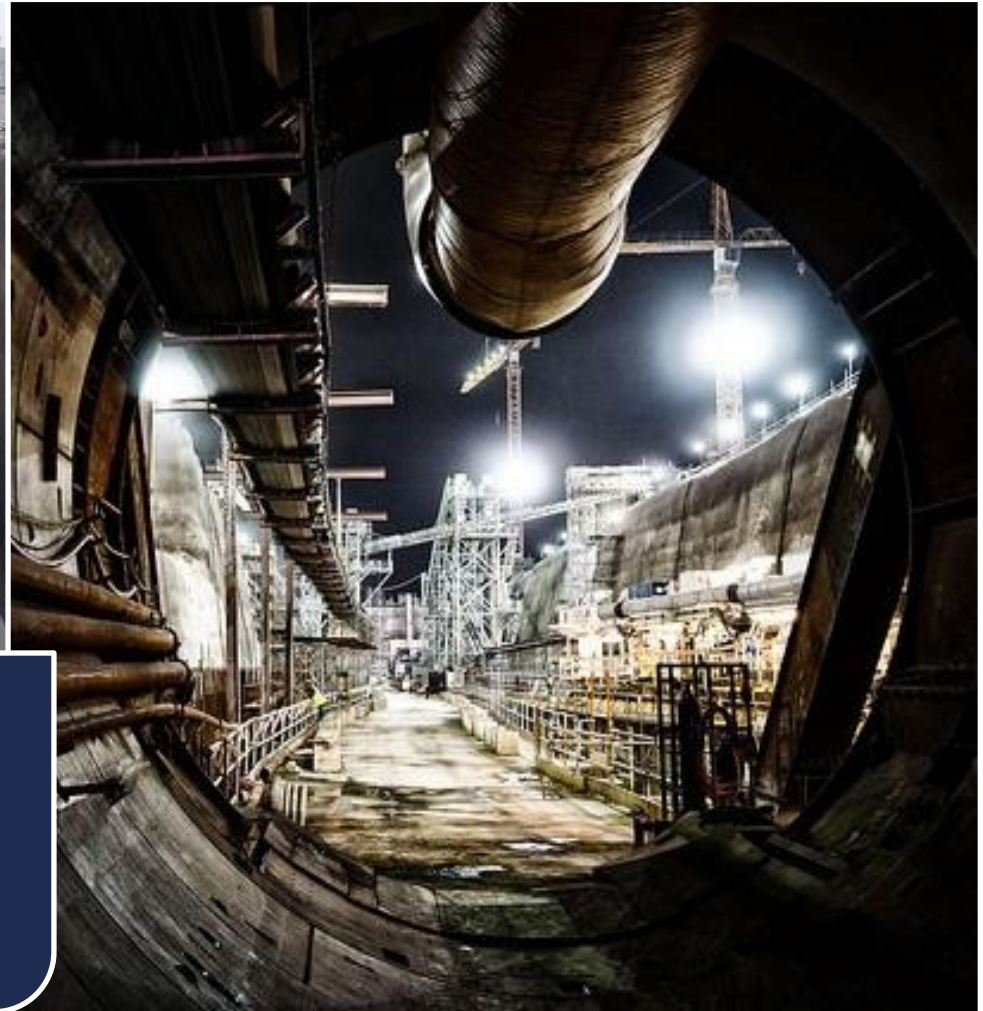


“HSP Enabling Works”

- Utility and Enabling Works for Doha Metro
- JV HBK – SBG – PORR
- Total Contract Volume: EUR 100 m
- Construction Period: 2011 – 2015



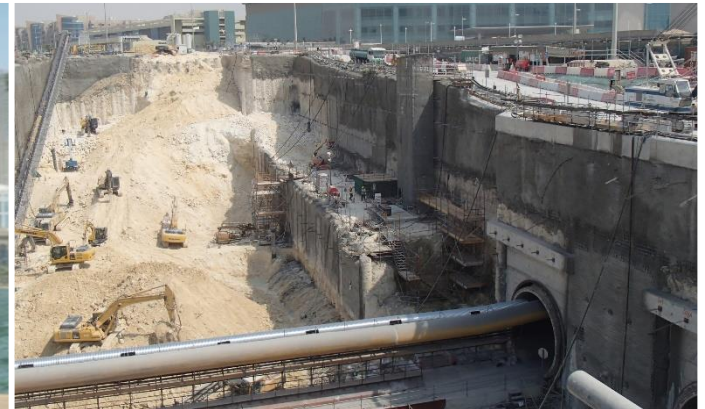
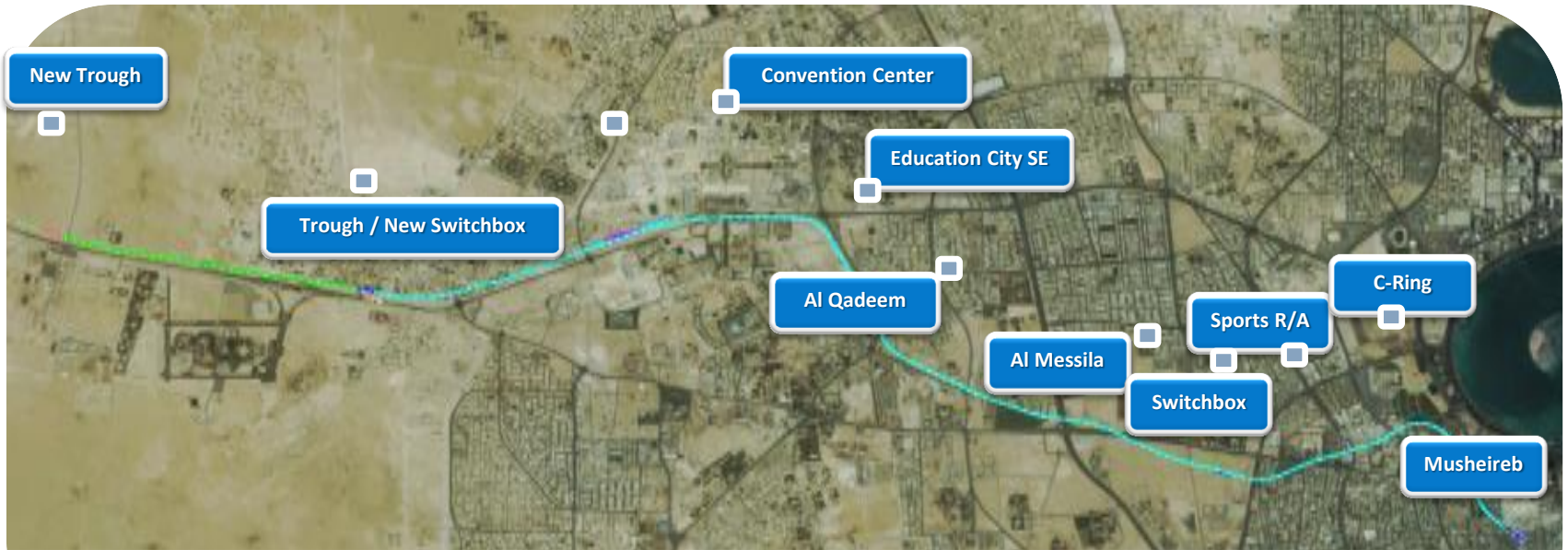
Green Line Underground, Qatar



“PSH Green Line Underground”

- 2 x 16.6 km Underground Tunnel
- 6 Stations and 6 TBMs
- JV PORR – SBG – HBK (Lead PORR)
- Total Contract Volume: EUR ~ 1.9 bn
- PORR Share: 50%
- Construction Period: 6/2013 – 6/2018

Green Line Underground, Qatar

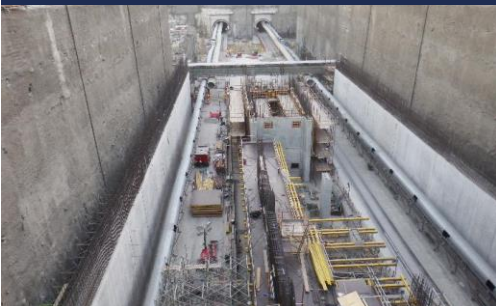


Green Line Underground, Qatar

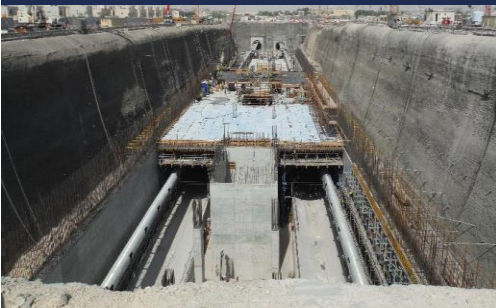
Key facts (September 2015)

- 18.3 m working hours with no major accident
- 1,800,000 m³ excavation; 16,000 segment rings produced out of 20,500
- 60 % of TBM drive finished
- Overall performance > 40 %; completion date achievable

Station THE WHITE PALACE



Station AL QADEEM



Station HAMAD HOSPITAL



Station AL SHAQAB



Station RYM



Station QNL



Green Line Underground, Qatar

Labour Camp



Green Line Elevated, Qatar



“SPH Green Line Elevated”

- 3.7 km long elevated railway
- JV SBK– PORR– HBK
- Total Contract Volume: EUR ~ 180 m
- Construction Period: 2014 – 2018



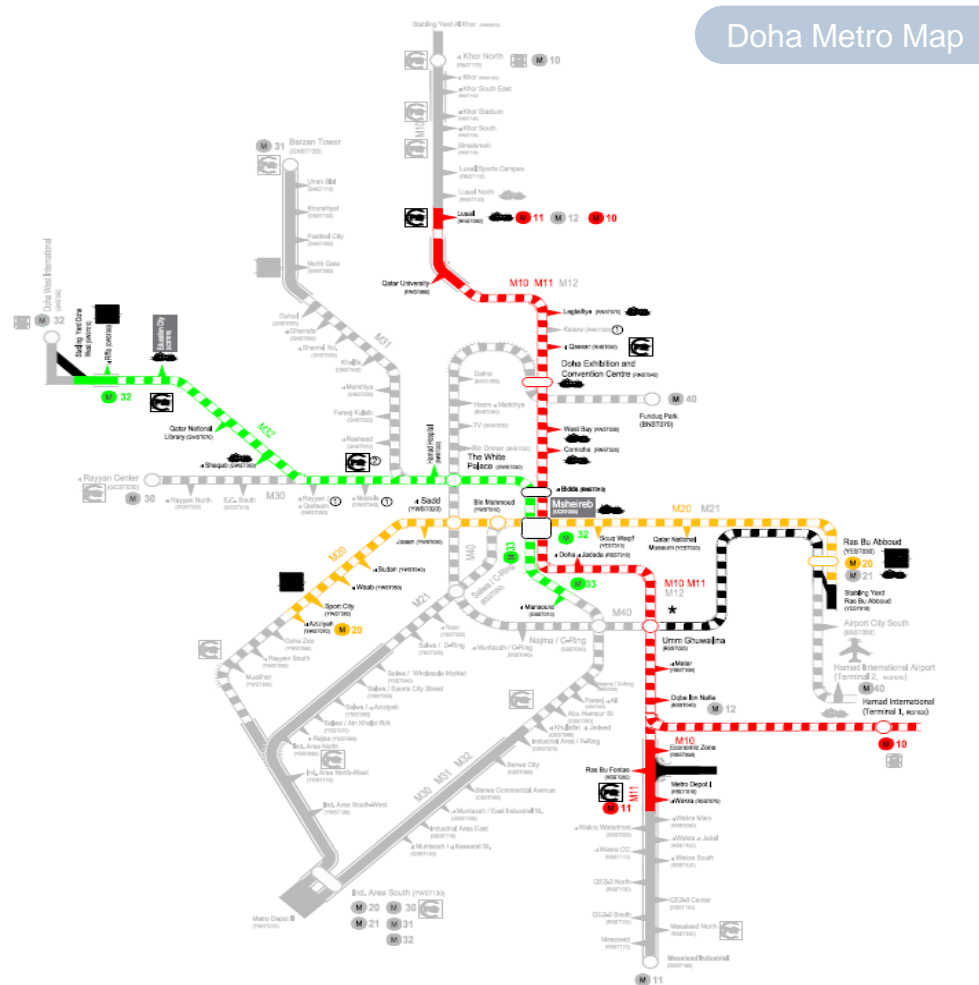
Slab Track Project Metro Doha, Qatar



Precast Factory

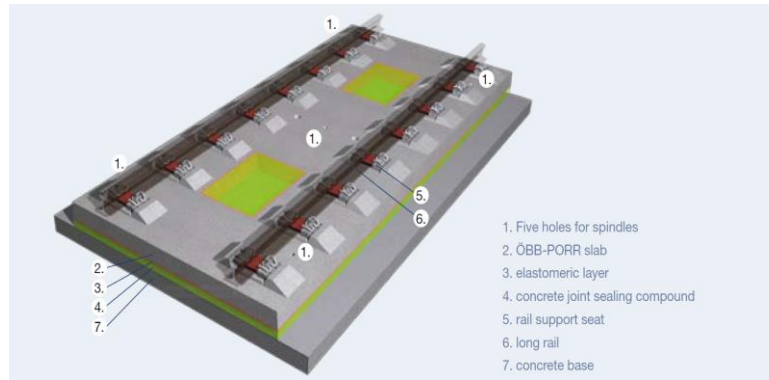
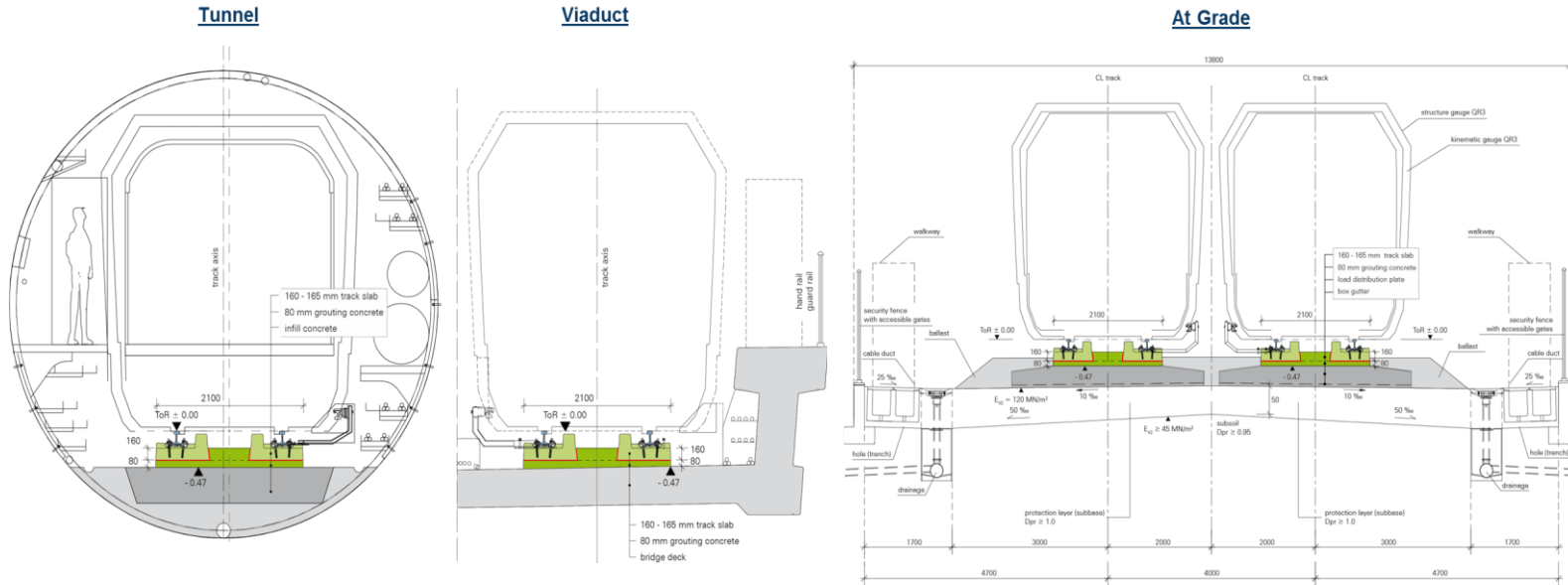
“Slab Track”

- Total Length Mainline: 165,772 m (Underground 133,147 m / At Grade 6,896 m / Elevated 25,729 m)
- Turnouts: 6,970 m
- Total Number of Slabs: 41,870 pcs
- Commencement Date: 12/08/2015
- Completion Date: 31/05/2018
- Contract Value: EUR ~ 162 m

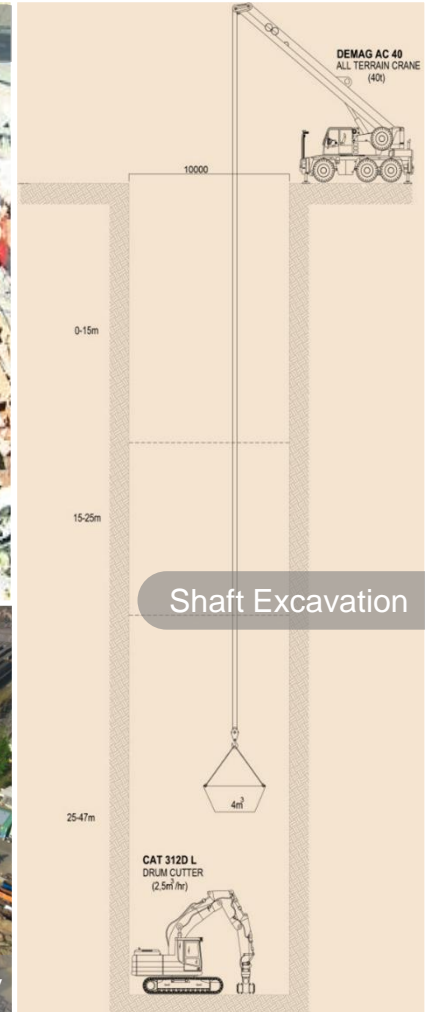
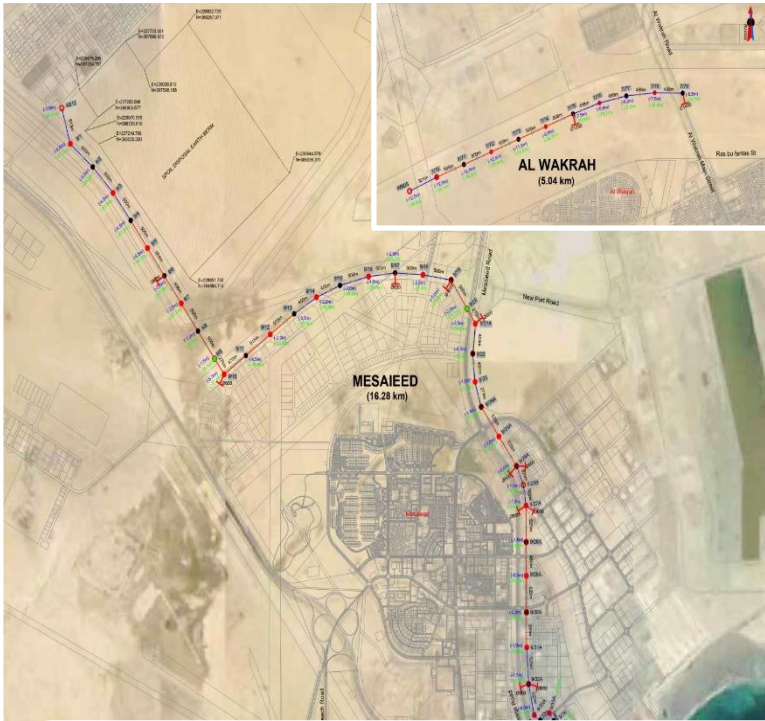


Slab Track Project Metro Doha, Qatar

Typical Cross-Sections



Lateral Interceptor Sewers, Qatar












“Lateral Interceptor Sewers (IDRIS)”

- 21.3 km of Micro-Tunneling Works
- 47 vertical Shafts for up depth of 50 m
- JV PORR – HBK
- Total Contract Volume: EUR ~ 142 m
- Construction Period: 2015 – 2017

Project Pipeline



		Tunnel	Railway	Slab Track	Civil Works	Deep Foundation
QA	 Al Rayyan Interchange – Highway with 3 intersections				●	●
	 Long Distance Railway – Doha to KSA Border		●	●		
	 Sharq Crossing – Submerged Tunnel				●	●
KSA	 Metro Jeddah	●		●	●	
	 Landbridge Project	●	●	●		
OM	 Oman Railway	●	●	●		
UAE	 Deep Tunnel Storm Water System	●				●
	 Dubai Metro Extension	●		●	●	
	 Ethiad Railway		●	●		

PORR – Top Standing in the GCC Region



Green Line, Qatar



International – Q & A Session



powered by



Focus Stuttgart Projects

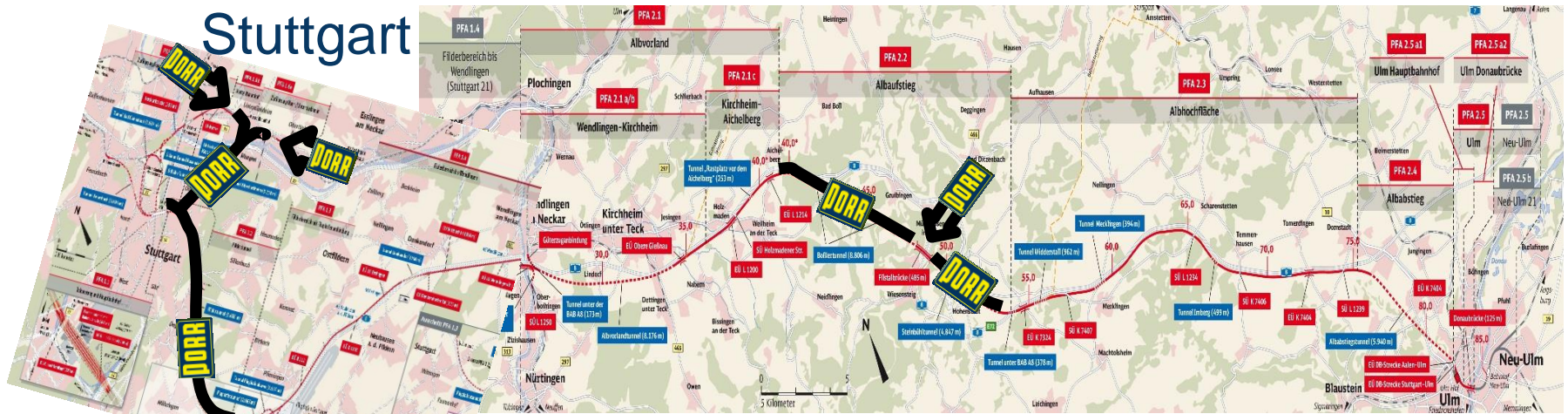
Hans Köhler, Managing Director Tunneling



powered by



PORR-Projects: Stuttgart - Ulm



Ramps
Ober- / Untertürkheim
Ober- / Untertürkheim 5,600m
Fildertunnel 9,300 m
29.8 km Tunnelling

Boßlertunnel 8,814 m
Filstalbrücke 485 m
Steinbühntunnel 4,850 m
28.3 km Tunnelling

PFA 1.2 Lot 1A - Fildertunnel
PFA 1.6a Lot 1B Zuführung Ober-/Untertürkheim

PFA 2.2 Albstadtstieg



Chapter 01 Client: Contractor construction



represented by



ATA
ARGE Tunnel Alaufstieg

Bahnprojekt Stuttgart-Ulm Alaufstiegstunnel



PORR Bau GmbH
Absberggasse 47
A-1100 Wien
PORR Deutschland GmbH
Fürstennieder Straße 285
D-81377 München

37%



G. Hinteregger & Söhne Baugesellschaft m.b.H.
Bergerbräuhofstraße 27
A-5020 Salzburg

21%



OSTU-STETTIN Hoch und Tiefbau GmbH
Münzenbergstraße 38
A-8700 Leoben

21%

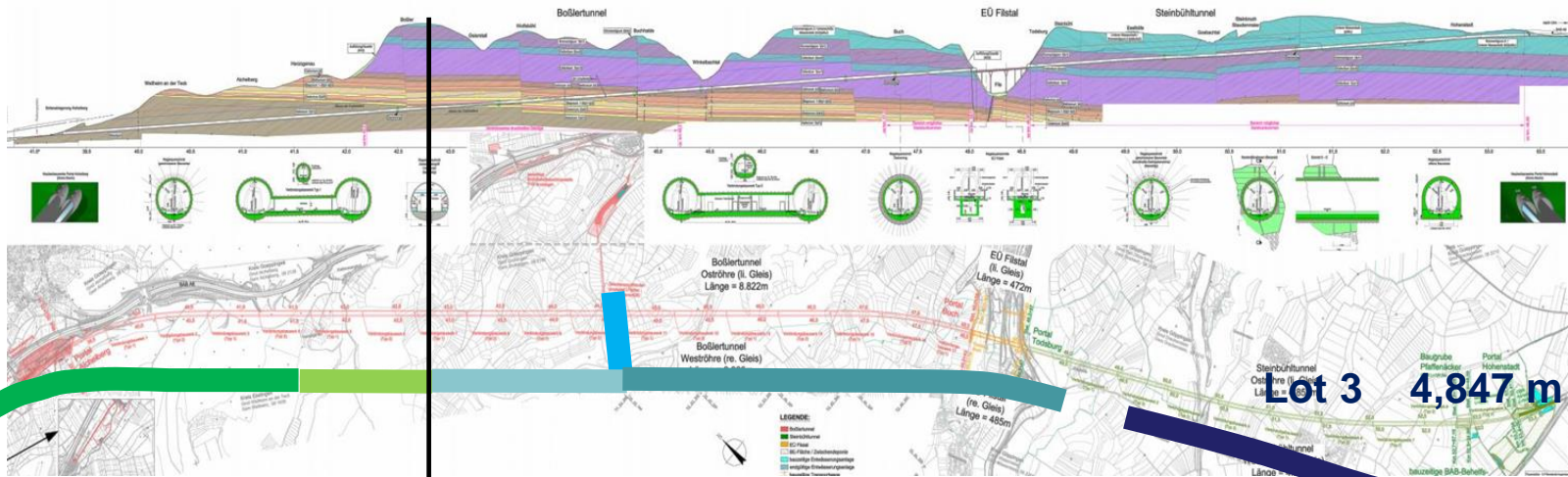


SWIETELSKY Tunnelbau Ges.m.b.H & Co KG
Innsbrucker Bundesstraße 61
A-5020 Salzburg

21%



Chapter 02 Albaufstieg: Construction lots 1 to 3



Filstalbrücke BÖGL & PORR



Chapter 02 Alaufstieg: Project development - construction

Timetable

- **Contract /contract start** 17 October 2012
planning phase and construction site equipment
- **Start of construction** March 2013
- **Start of excavation Steinbühl tunnel** June 2013
- **Start of excavation Boßlertunnel** July 2013 access tunnel Umpfental
- **Start TBM – advance** April 2015
- **Completion date** 28.2.2019



Chapter 03 Project: Key Dates

Los 1 (Portal Aichelberg) + Los 2 Boßlertunnel with access Umpfental

Los 3 Steinbühlertunnel

Tunnel length 2 x 8,806 m 2 x 4,847 m
 Access tunnel Umpfental 960 m
 Total length – tunnel tubes 28,266 m

Excavation method Tunnelboringmaschine/NATM NATM

Interior work Segmental lining/insitu lining insitu lining

excavation 2,200,000m³ **3,600,000 m³** 1,400,000 m³

reinforcement steel 40,000 to **70,000 to** 30,000 to

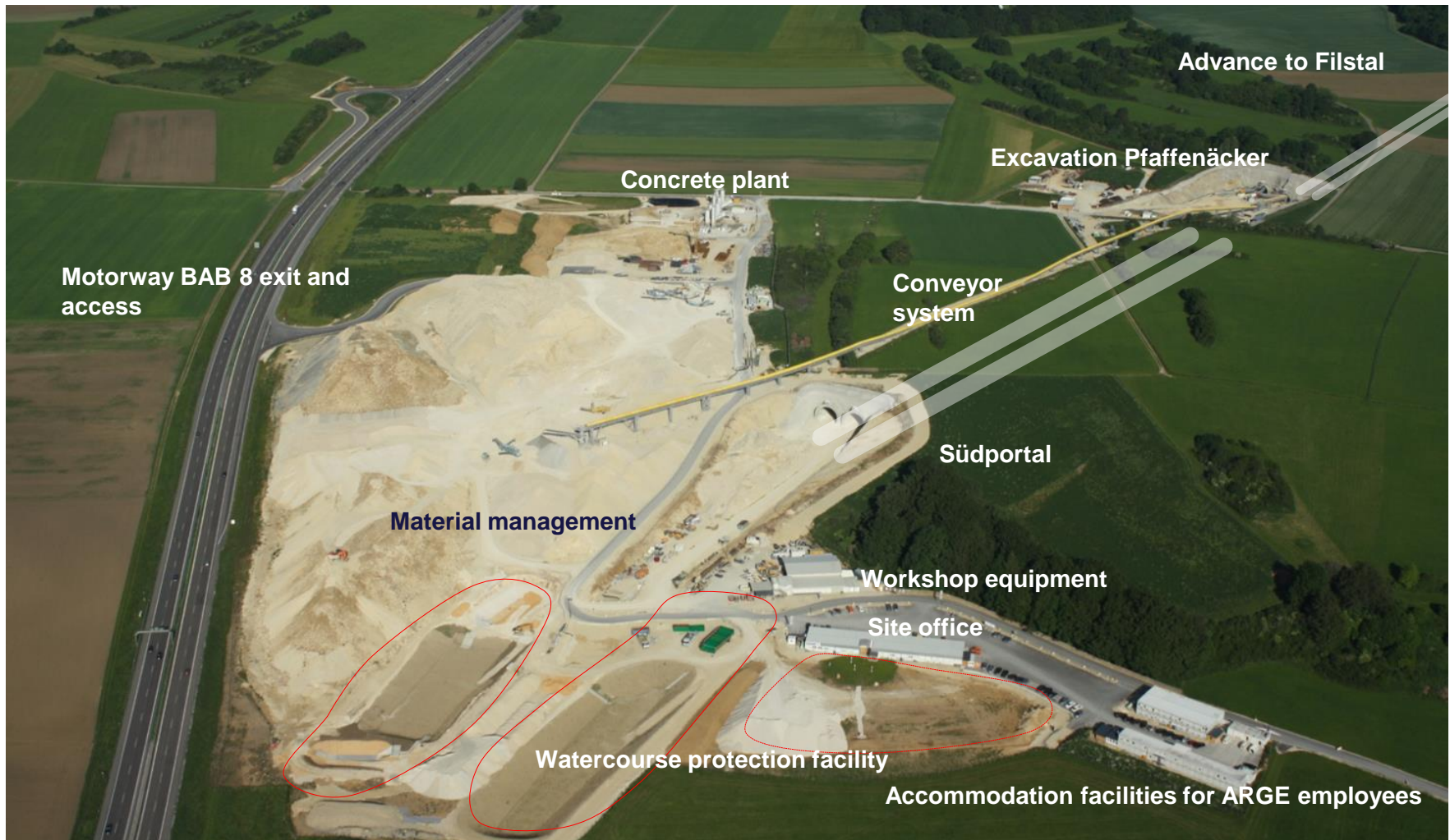
shotcrete 120,000 m³ **300,000 m³** 180,000 m³

total crete 700,000m³ **1,100,000 m³** 400,000 m³

Total order value: EUR 635 m
Engineers and other employees of the site office: 55
Industrial personnel: 350 (subcontractorsincluded)



Chapter 04 Site Installation: Steinbühl tunnel, lot 3



Chapter 04 Site Installation: Umpfental, lot 2, Boßlertunnel



Chapter 04 Site Installation: Boßlertunnel, lot 1



Chapter 04 Site Installation: Production of segmental lining



Chapter 05 Health/Safety: Accident counter - documentation



Tägliche SMS Information
(zwischen 6:00 und 7:00)



Systembeschreibung:

Normales EDV Bildschirmsystem mit PC und Bildschirm werden vom Bediener über das ATA- Serversystem angesteuert. Hierbei erfolgt die Zählung unfallfreier Tage automatisch. Die 0- Rückstellung nach einem meldepflichtigen Arbeitsunfall erfolgt händisch durch den Systembeauftragten.

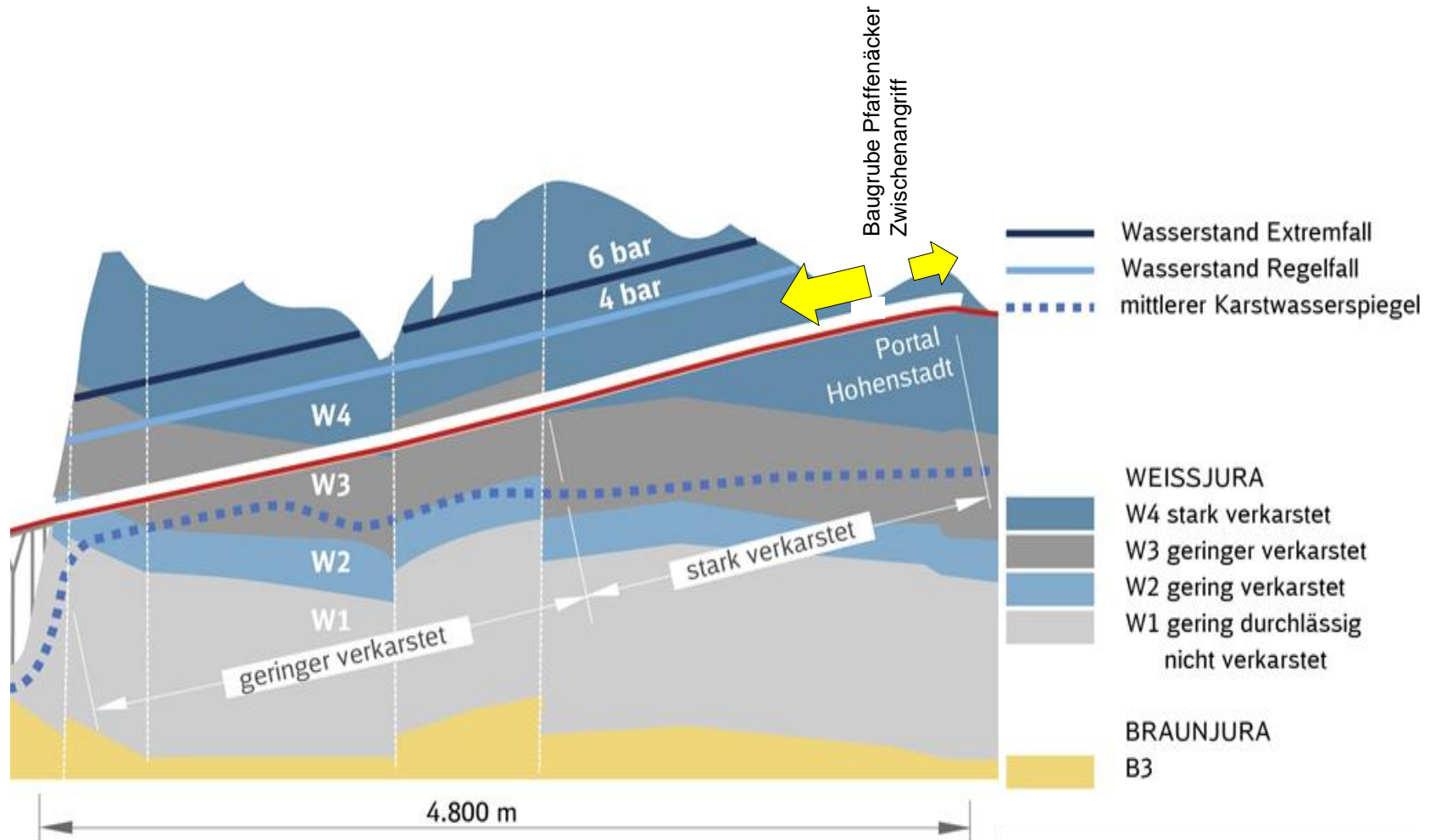
Über das System werden auch Wochen- und Monatsschwerpunkte zur Arbeitssicherheit und sonstige Informationen transportiert.

Bewertung:

Für den Systembetrieb ist ein EDV Anschluss PC und Bildschirm notwendig.

Für das System bestehen Anwendungsgrenzen hinsichtlich Umwelt- und Baueinflüsse, EDV-Anschluss und Diebstahlsicherung.

Chapter 06 Steinbühl tunnel: Geology



Chapter 06 Steinbühl tunnel: Advance NATM

Advance top heading



Chapter 06 Steinbühl tunnel: Advance NATM

Blasting



Chapter 06 Steinbühl tunnel: Advance NATM

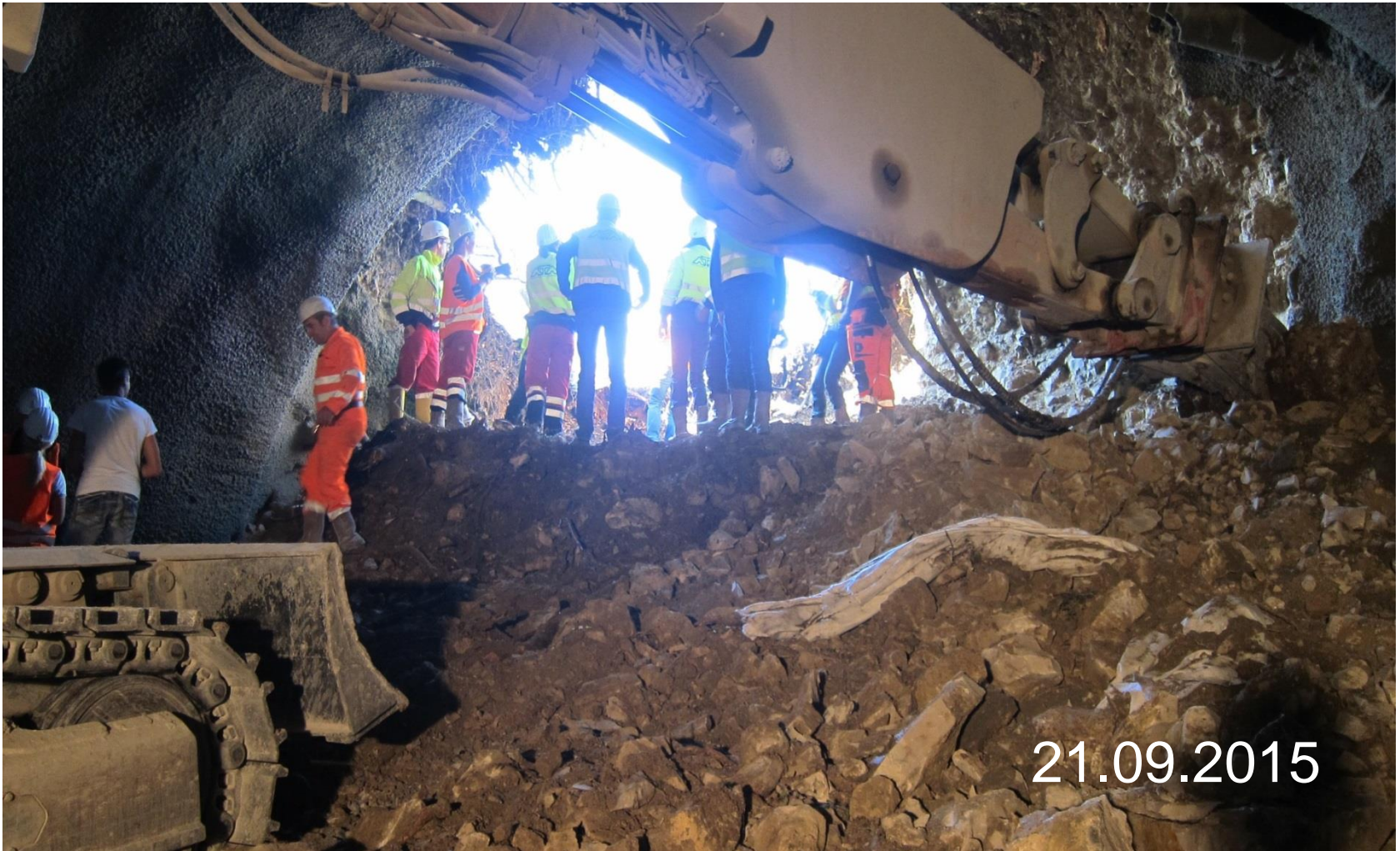
Advance bench



Chapter 06 Steinbühl tunnel: Advance - Karst



Chapter 06 Steinbühl tunnel: Break through



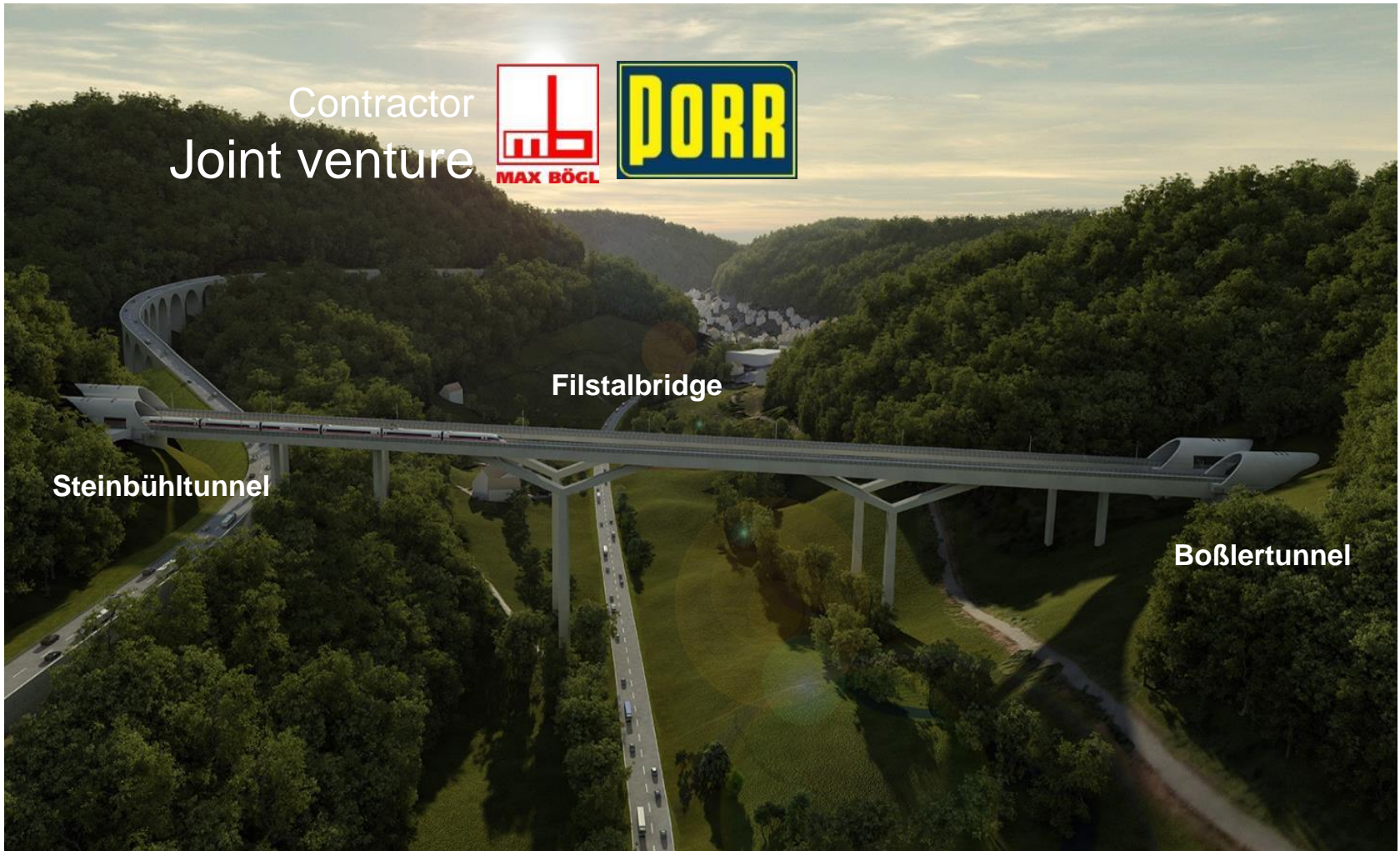
21.09.2015

Chapter 06 Steinbühl tunnel: Inner lining



Chapter 07/08 Filstal: Filstal Bridge

Contractor
Joint venture



Filstalbridge

Steinbühlertunnel

Boßlertunnel



Chapter 08 Boßlertunnel: Geology

Lot 1 3,706m

Lot 2 5,100m

oberes
Grundwasserstockwerk

W1 gering
durchlässig
nicht
verkarstet

W2
W1

W4
W3

B3

B2

B1

-  Wasserstand Extremfall
-  Wasserstand Regelfall
-  Abdichtungsbauwerk zur Trennung der unteren Grundwasserstockwerke
- WEISSJURA**
-  W4 stark verkarstet
-  W3 geringer verkarstet
-  W2 gering verkarstet
-  W1 gering durchlässig nicht verkarstet
- BRAUNJURA**
-  B3
-  B2
-  B1

Portal Aichelberg

6 bar

TBM

8.800 m



Chapter 08 Boßlertunnel: Exploration shaft-crossing

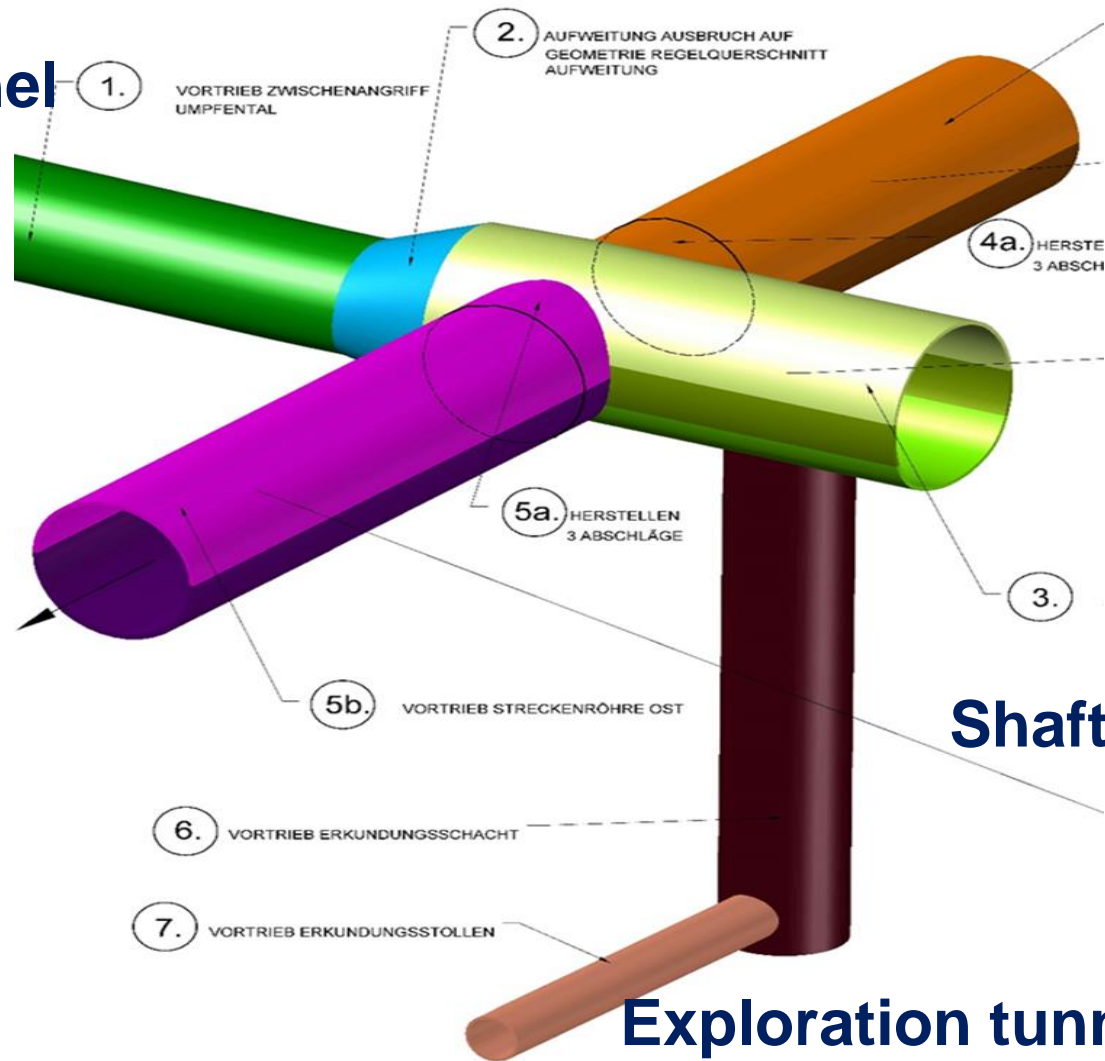
Access tunnel

ULM

Stuttgart

Shaft 50m

Exploration tunnel



Chapter 08 Boßlertunnel: Exploratory shaft

Strata exploration for optimisation advance TBM



Chapter 08 Boßlertunnel: TBM

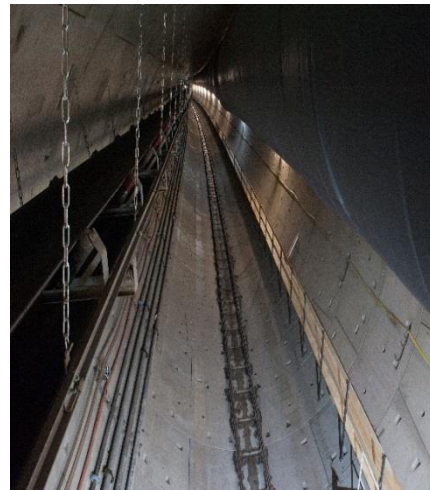
Start advance: 14.04.2015 → TM 2,500m in September 2015



Machine type	EPB
Installed power	8.000 kW
Theoretical advance rate	100 mm/min
Thrust force - 52 Zylinder	127,000 kN
Length TBM + back up	115 m
Diameter of cutterhead	11,34 m
Total weight	2,500 to



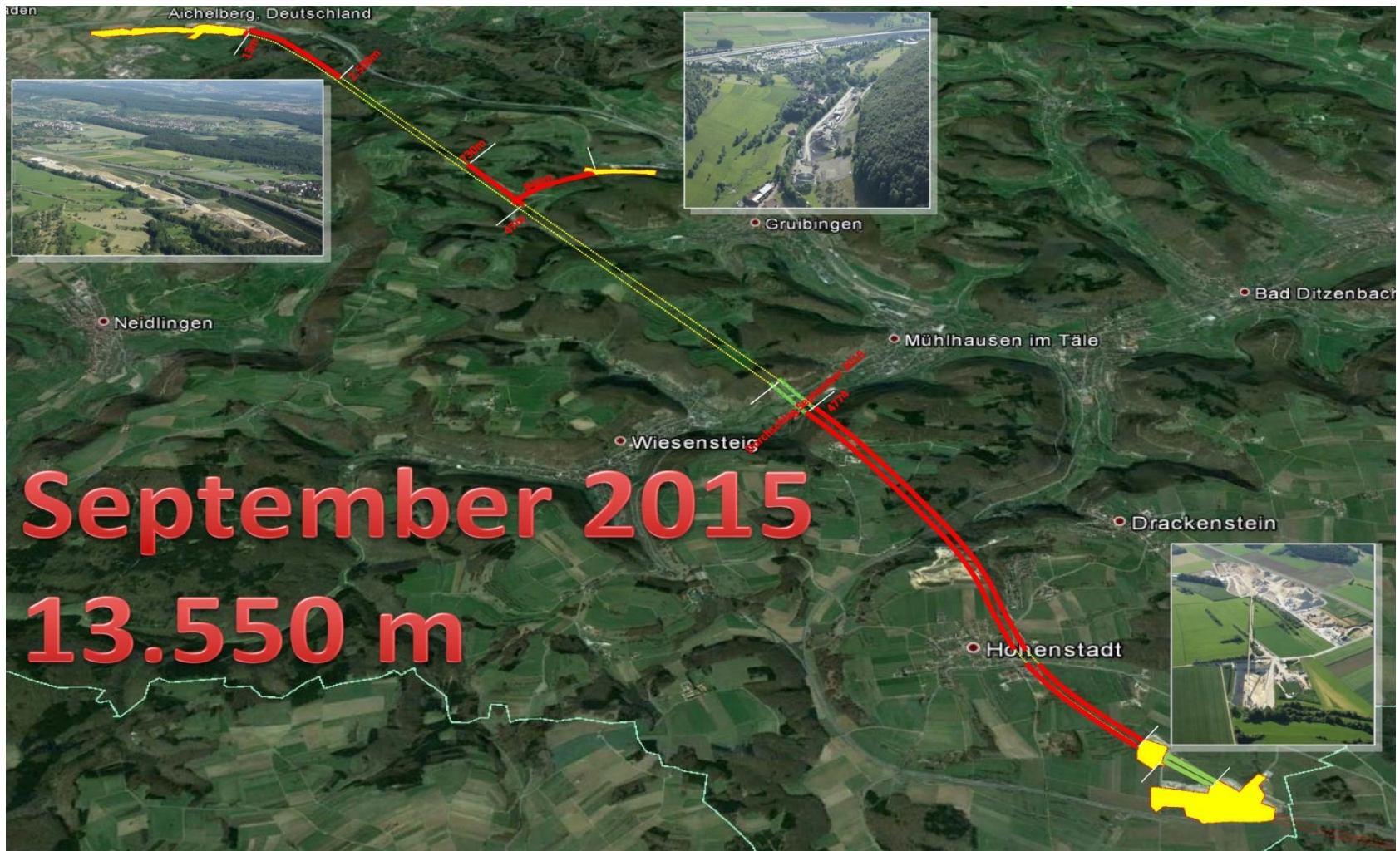
Chapter 08 Boßlertunnel: TBM



Chapter 08 Boßlertunnel: TBM



Chapter 09 Alaufstieg: Status of project - September 2015



Albaufstieg - Site Visit

