



DAS – IB GmbH, LFG & Biogas - Technology  
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# LANDFILL GAS EXTRACTION SYSTEMS AND UTILISATION IN HUNGARY PUSZTAZAMOR LANDFILL SITE OF FKF ZRT. BUDAPEST

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1ST MIDDLE EUROPEAN CONFERENCE  
ON LANDFILL TECHNOLOGY  
February 6 – 8, 2008  
Hungarian Academy of Sciences

## Why did we came to Hungary?

**Carbon Trading with Landfill Gas (LFG) and carbon credits; JI and CDM – projects**

**Trade with greenhouse gas emissions resp. greenhouse gas allowance**

**10th International Waste Management and Landfill Symposium / Sardinia 2005**

**3 – 7 October 2005**

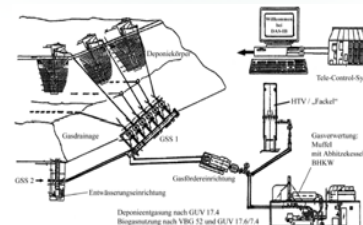
**So I came to Hungria – Budapest – FKF Zrt (Stadtreinigungsbetriebe Budapest) at Eastern 2005 with our first steps**

DAS – IB GmbH

LFG - & Biogas - Technology

Biogas-, Sludge gas and Landfill gas technology:

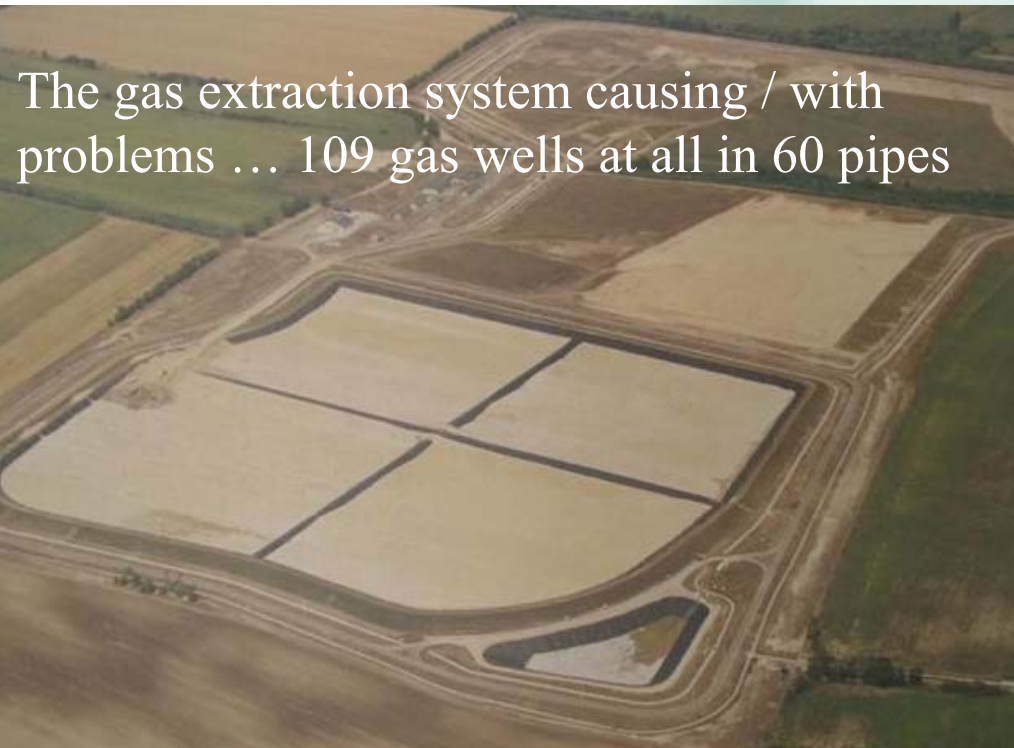
- Consulting, planning & design, project management
- Familiarisation and training of system operators
- Independent Expert & Specialist
- Expert in ATEX – Zoning according to 99/92/EG and 94/9/EG



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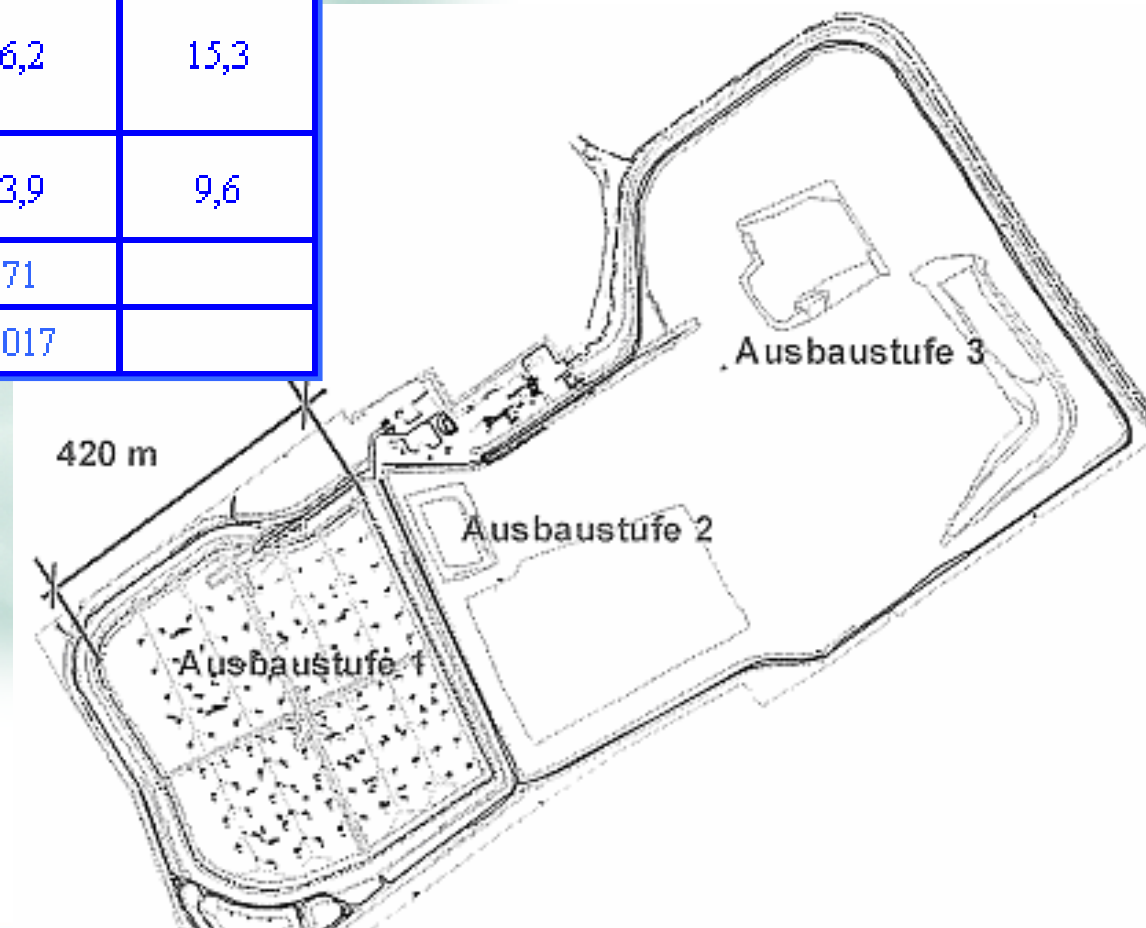
## Intruduction of Pusztazámor Landfill

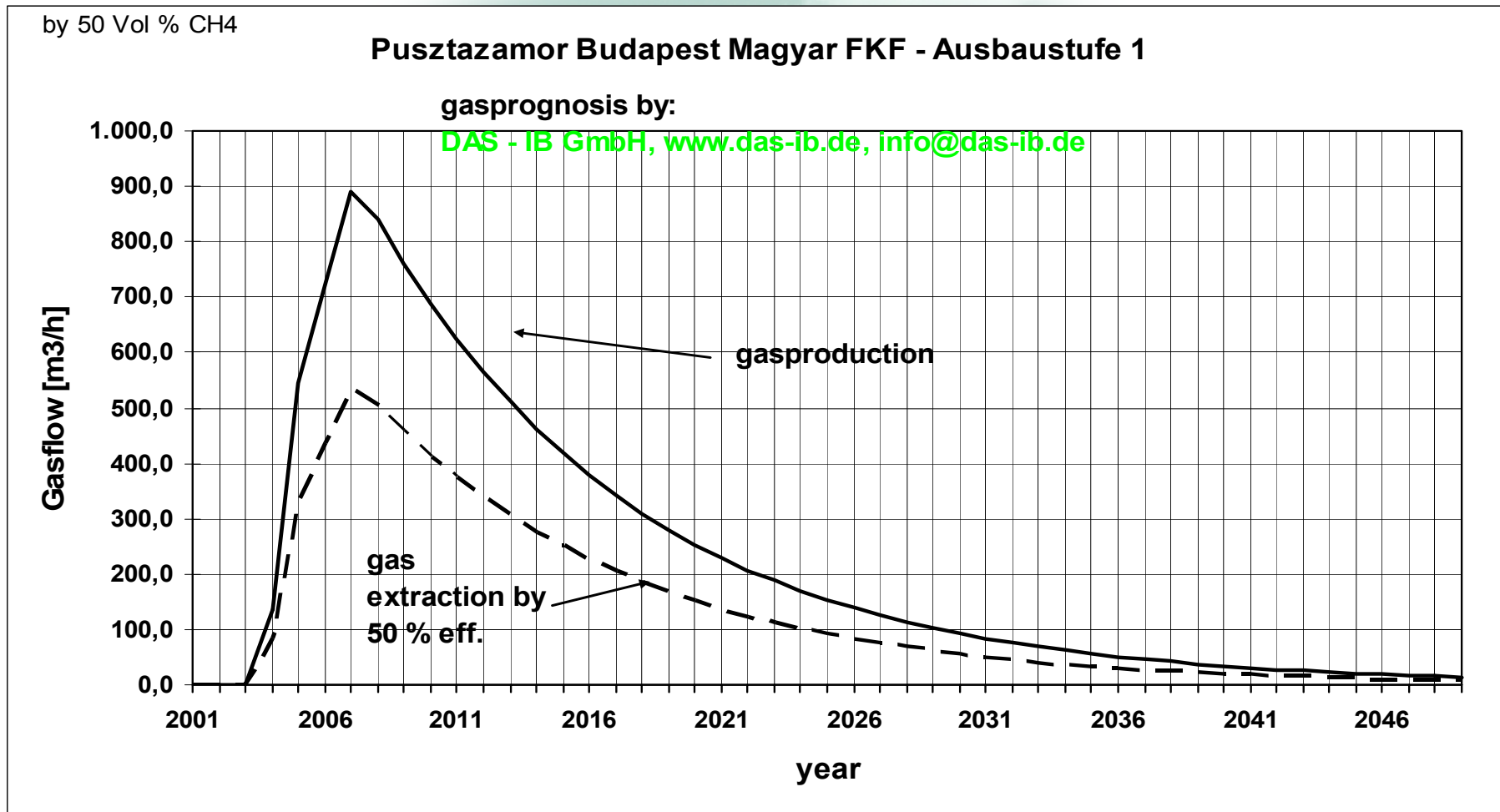
- That is operated by the Budapest Sanitation Department (FKF Zrt.)
- approx. 350,000 t of residual waste are deposited per annum
- gas wells and pipework were installed



## Intruduction of Pusztazámor Landfill

		Expansion stage 1	Expansion stage 2	Expansion stage 3	Total
Base area	Ha	18,4	14,2	21,7	54,3
Dumping volume (without surface sealing)	mill.m <sup>3</sup>	4,6	4,5	6,2	15,3
Amount of residual waste	mill. t	2,9	2,8	3,9	9,6
Filling height	m	65	65	71	
Start-up		2000	2010	2017	





## Implementing gas extraction system for pumping trail

### Companies of the Project

- **Budapest Sanitation Department (FKF Zrt.)**
- **DAS-IB GmbH.**
- **MÉLYÉPTERV KOMPLEX ENGINEERING Corp.**
- **MVM ERBE Zrt.**
- **Pro2-Anlagentechnik GmbH.**
- **HEERS & BROCKSTEDT UMWELTTECHNIK GmbH.**

29/03/2006

## Implementing gas extraction system for extraction test



- **2.5 MW<sub>th</sub> capacity**
- **3% slope**
- **Leachate water**
- **German „TA Luft” standard**
- **Boiler since April 2007**

## Implementing gas extraction system for extraction test







-CH<sub>4</sub>, CO<sub>2</sub>, O<sub>2</sub> (Vol %)

-F (m<sup>3</sup>/h)

-p (mbar)

-T (°C)

-FID (ppm)

-Full raw gas analysis



## Landfillgas potential of Hungary

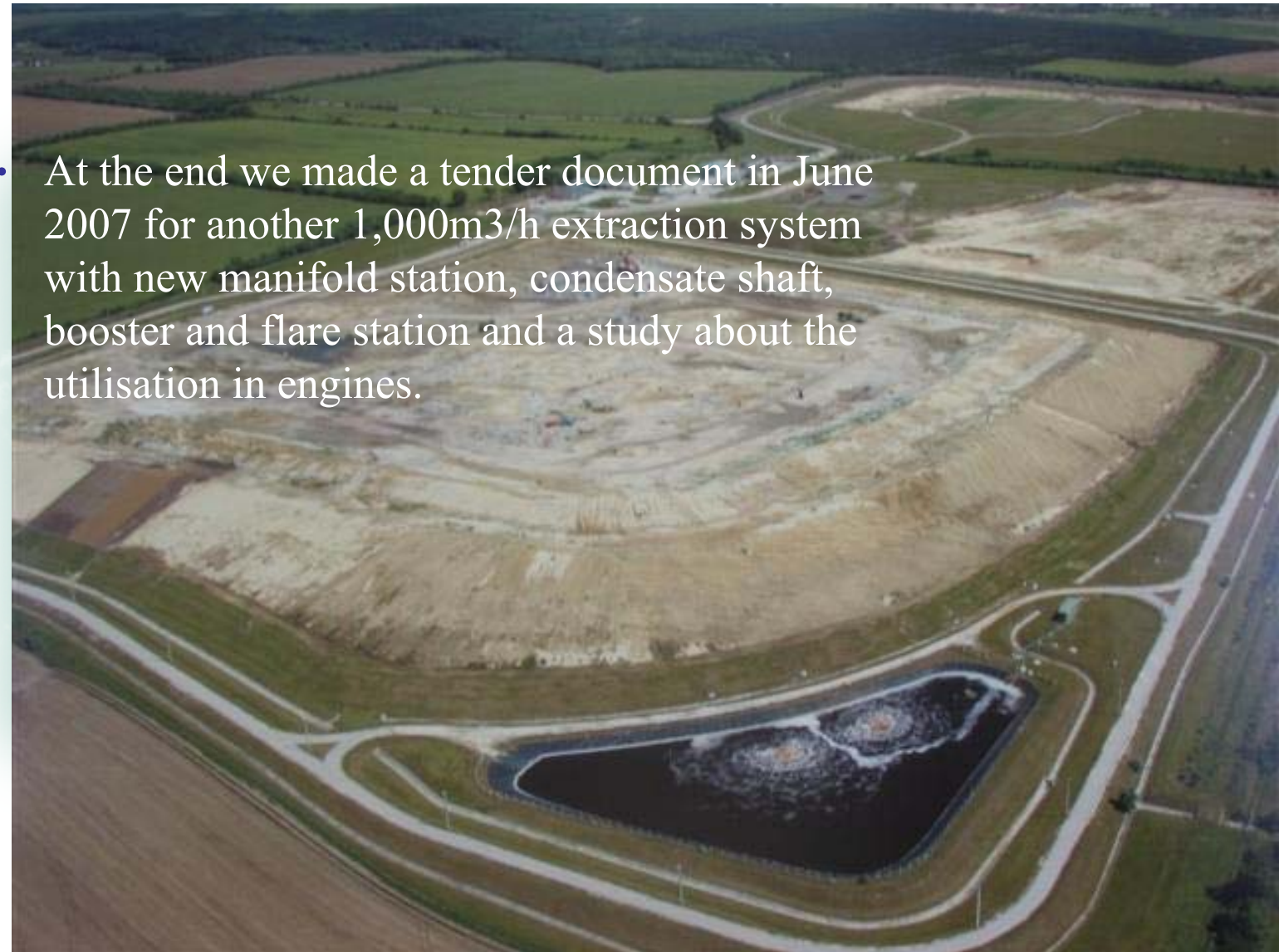
Quantity of greenhouse gas of Hungary	~ 65 million t CO <sub>2eq</sub> /a
Municipal waste of Hungary:	~ 5 million t/a
Landfillgas emission of Hungary:	~ 700 million m <sup>3</sup> /a
	~ 5,2 million t CO <sub>2eq</sub> /a
Landfillgas part:	~ 8 %
Power plans emission:	~ 15,5 million t CO <sub>2eq</sub> /a
Power plans part:	~ 24%

## Further steps

- Aim to know the max. gas quantity
- New gas extraction system with existing wells
- New wells
- Gas engines

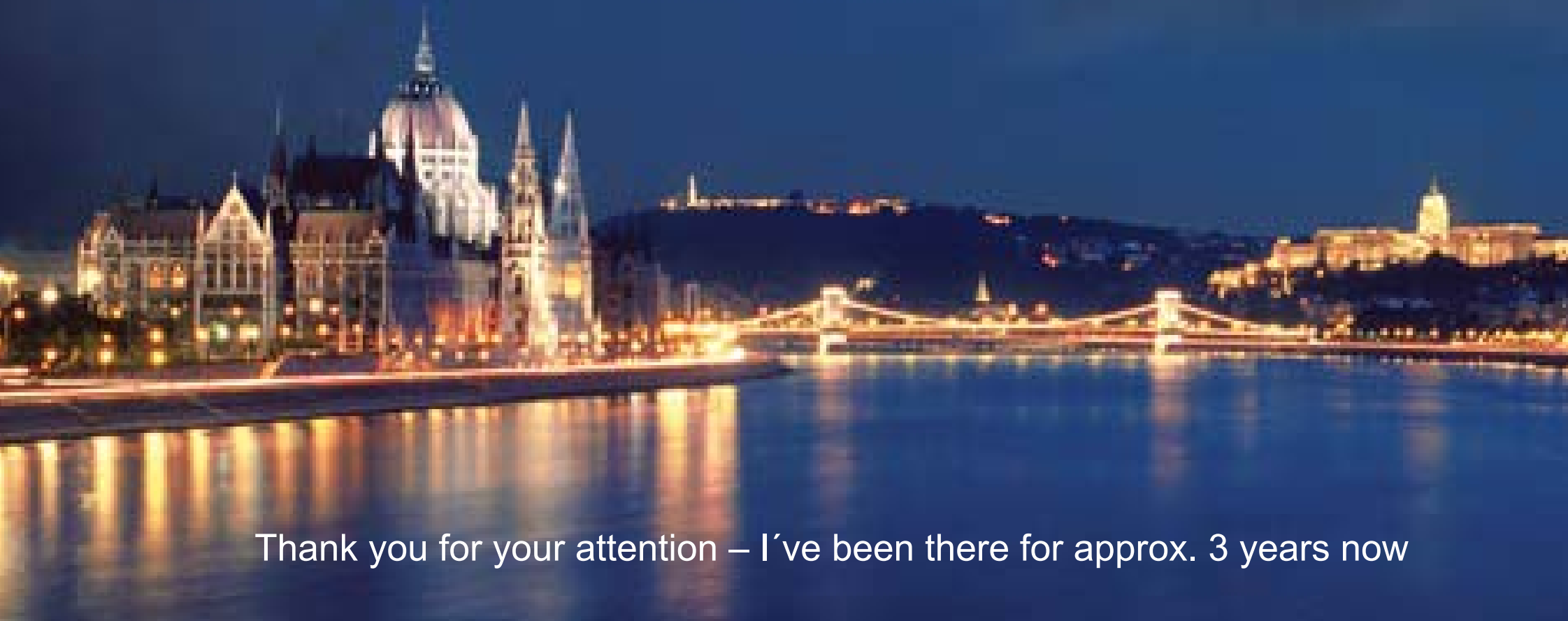
## Problems & surprises:

- \* gas prognosis models
- \* water lenses
- \* gas temperature
- \* foams in the condensate shaft



**Everyone** stays in Budapest longer than planned

**romans** for 400 years, **ottomans** for 150 years, **soviets** for 45 years,



Thank you for your attention – I've been there for approx. 3 years now