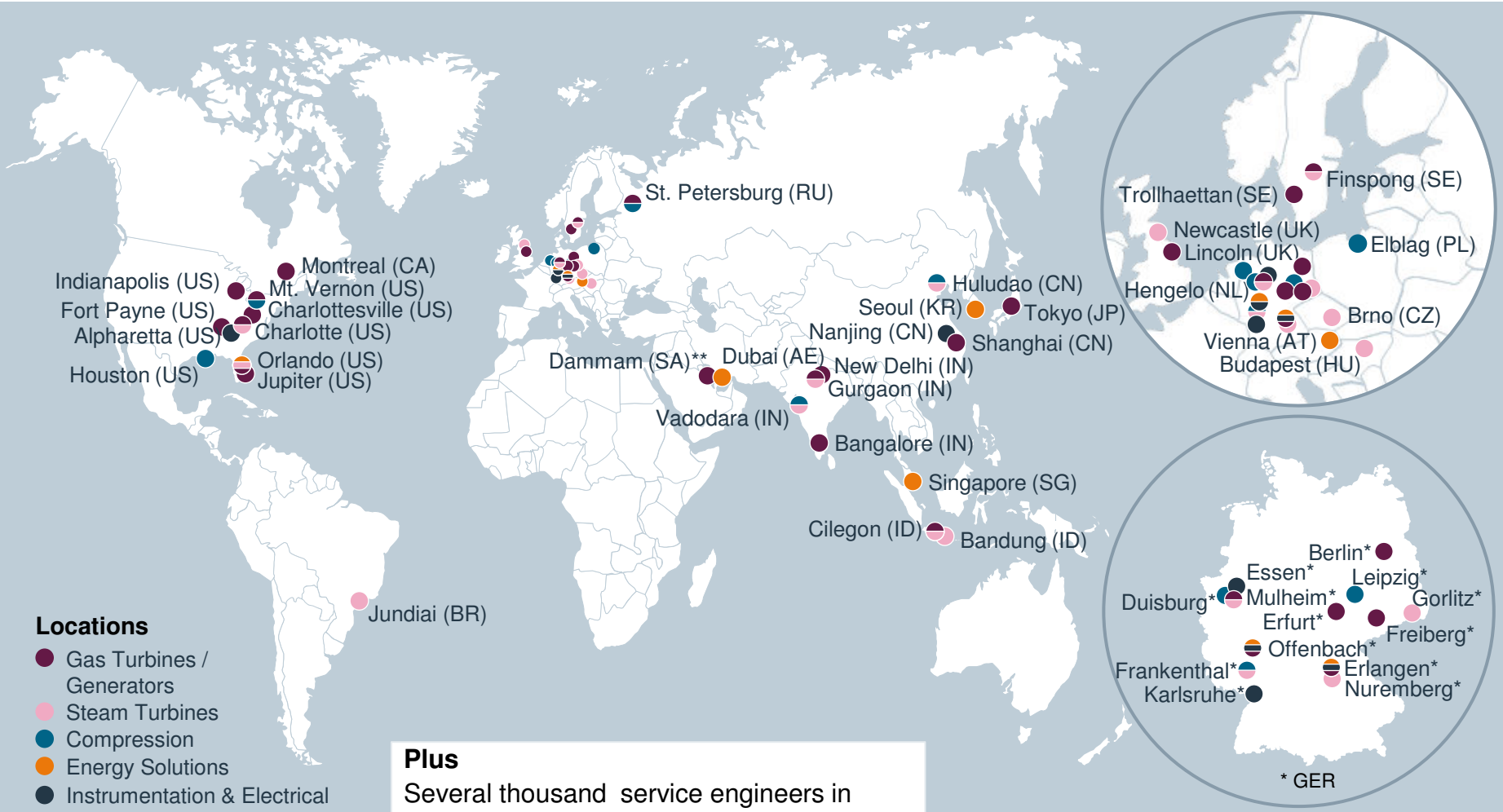


Viktor Verle, Country Division Lead PG; PS; WP
European Forum of Nuclear Industry Suppliers ATOMEX – Europe 2015; 30 November 2015

Siemens cooperation with Rosatom

Siemens Power and Gas / Power Generation Services

Global network



** Under construction

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Cooperation with Rosatom's companies

Knowledge of regional requirements and experience



Novovoronezh NPP-2

- GIS 220/500 kV, GIL
- Relay protection
- Electrical drives for pump systems



Belarus NPP

- GIS 330 kV
- Electrical drives for pump systems



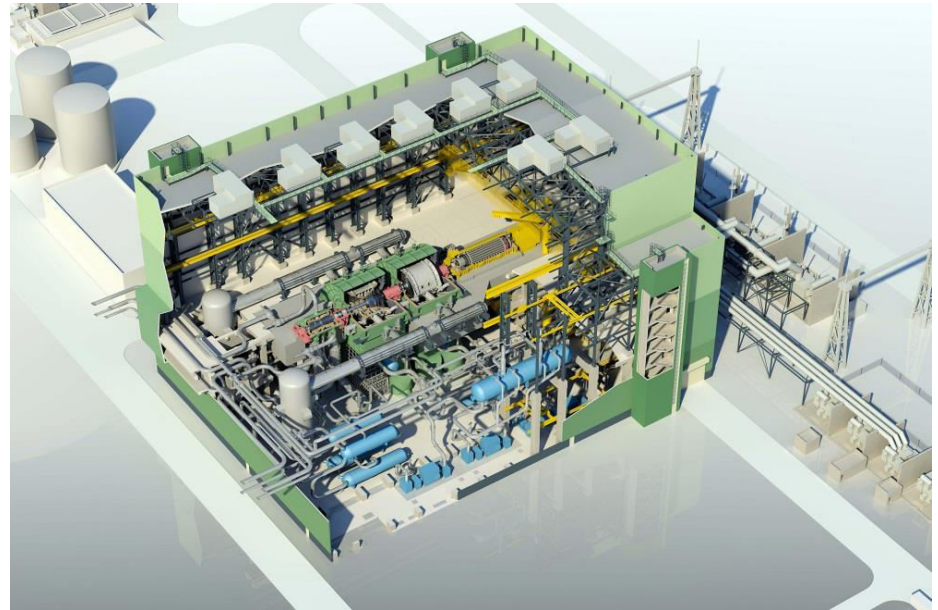
Tianwan NPP

- I&C (together with AREVA)
- Digital simulator

Cooperation with Rosatom in regard to Steam Turbines / Turbine Island

Since 2009 Siemens took part in several tender processes of Rosatom and offered its Turbine-Generator-Package as well as the condensate and the feedwater system:

- Ostrovetsk / Belarus (2 Units)
- N. Novgorod / Russian Federation (2 Units)
- Rostov 4 / Russian Federation (1 Unit)
- Metzamor / Armenia (1 Unit)
- Akkuyu 1 - 4 / Turkey (4 Units)
- Temelin / Czech Republic (2 Units)
- Hanhikivi 1 (Pyhäjoki) / Finland (1 Unit)
- Kursk II / Russian Federation (2 Units)
- Kudankulam 3&4 / India (2 Units)



Cooperation of Rosatom and Siemens in the field of operational I&C has strong long term basis

NPP	Country	Type of Reactor	Reactor OEM	Function	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	status
Mochovce 1	Slovakia	PWR (VVER)	SKODA	ISCAMATIC B																in operation
Mochovce 2	Slovakia	PWR (VVER)	SKODA	ISCAMATIC B																in operation
Tianwan 1	China	PWR (VVER)	AEE/ASE	SPPA-T200 OM690 + TXS																in operation
Tianwan 2	China	PWR (VVER)	AEE/ASE	SPPA-T200 OM690 + TXS																in operation
Kozloduy 5/6	Bulgaria	PWR (VVER)	AEE	SPPA-T200 OM650 + TXS																in operation
Olkiluoto 3	Finland	PWR	AREVA NP	SPPA-T200 OM690 + TXS																⇒
Ling Ao 3	China	PWR	CNPEC	SPPA-T200 OM690 + TXS																in operation
Ling Ao 4	China	PWR	CNPEC	SPPA-T200 OM690 + TXS																in operation
Loviisa 1	Finland	PWR	AEE	SPPA-T200 OM690																in operation
Loviisa 2	Finland	PWR	AEE	SPPA-T200 OM690																in operation
Flamanville 3	France	PWR	AREVA NP	SPPA-T200 OM690 + TXS																⇒
Atucha 2	Argentina	PHWR	KWU/NA-SA	SPPA-T200 OM690 + TXS																in operation
Belene 1&2	Bulgaria	PWR (VVER)	ASE	Concepts for SPPA-T200 OM690 + TXS																cancelled
Taishan 1	China	PWR	AREVA NP	SPPA-T200 OM690 + TXS																⇒
University of Florida	U.S.A.	Research Reactor	GNEC	SPPA-T3000																⇒
Taishan 2	China	PWR	AREVA NP	SPPA-T200 OM690 + TXS																⇒
Mochovce 3	Slovakia	PWR (VVER)	SKODA	SPPA-T200 OM690 + TXS																⇒
Mochovce 4	Slovakia	PWR (VVER)	SKODA	SPPA-T200 OM690 + TXS																⇒
Tianwan 3	China	PWR (VVER)	AEE/ASE	SPPA-T200 OM690 + TXS																⇒
Tianwan 4	China	PWR (VVER)	AEE/ASE	SPPA-T200 OM690 + TXS																⇒
Angra 3	Brazil	PWR	AREVA NP	SPPA-T200 OM690 + TXS																⇒
Fuqing 5	China	PWR	CNPE	SPPA-T200 OM690 + TXS																⇒
Fuqing 6	China	PWR	CNPE	SPPA-T200 OM690 + TXS																⇒

- 47 units with I&C systems from Siemens
 - Overall digital operational I&C from Siemens in 21 units
 - SPPA-T2000 OM690 in 6 VVER units (total 17 units)
- Today 13 units with SPPA-T2000/TXS under execution in 9 projects
- Execution force of 300 FTE



Tianwan NPP VVER1000 with Siemens' SPPA-T2000

Siemens in Hungary

Siemens Zrt.

Center Office

Hungarian market

- Digital Factory / Process Industries and Drives
- Power and Gas / Power Generation Services
- Energy Management
- Building Technologies
- Mobility
- Wind Power and Renewables



Transformer Plant

Hungarian market

International market

- Production of distribution transformers



Turbine Comp. Plant

International market

Manufacturing of gas and steam turbine components



evosoft Kft.

International market

Development of individual software solutions

Siemens Healthcare Kft.

Hungarian market

Diagnostics, therapy and healthcare IT

Siemens Hungary

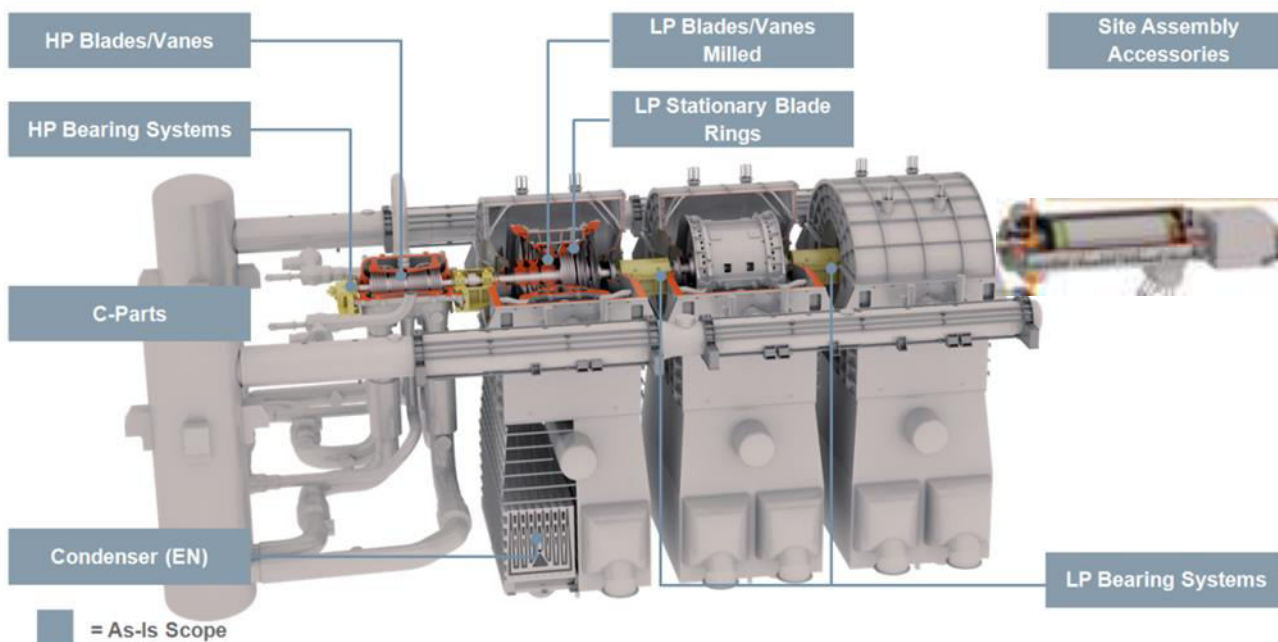
Project execution experience



Paks II. project

Potential Siemens scope with local value add

SST5 – 9000: Typical components with significant value-add in Turbine Component Plant Budapest



As of today ~20% of the Siemens Value Add performed in Hungary

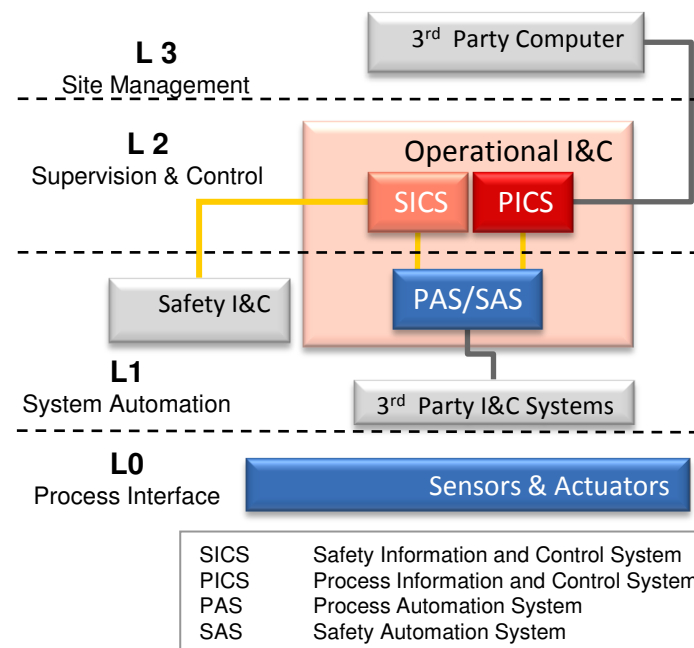
Paks II. project

Potential Siemens scope with local value add

Tailor-made digital operational I&C solutions based on SPPA-T2000 with OM690

Overall or dedicated solutions

- Overall operational I&C solution (NI/CI)
- Solutions for dedicated single process areas (e.g. water treatment)
- Specific process I&C solutions (e.g. turbine control, turbine protection)



Paks II. project

Potential Siemens scope with local value add

Main- and auxiliary transformers

Electrical drives

Medium voltage equipment

Fire detection and protection

Low voltage equipment

Building technology



THANK YOU FOR YOUR ATTENTION!



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