

A STATUS OF CONTROL SYSTEM SECURITY IN JAPAN

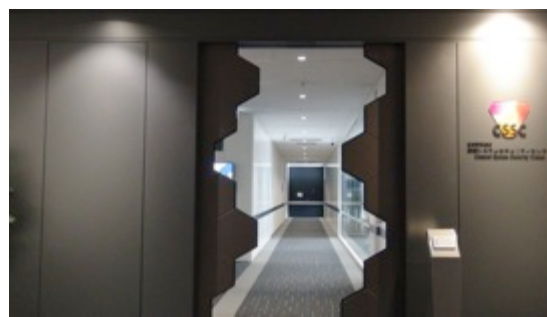
Dr. Seiichi SHIN

Professor

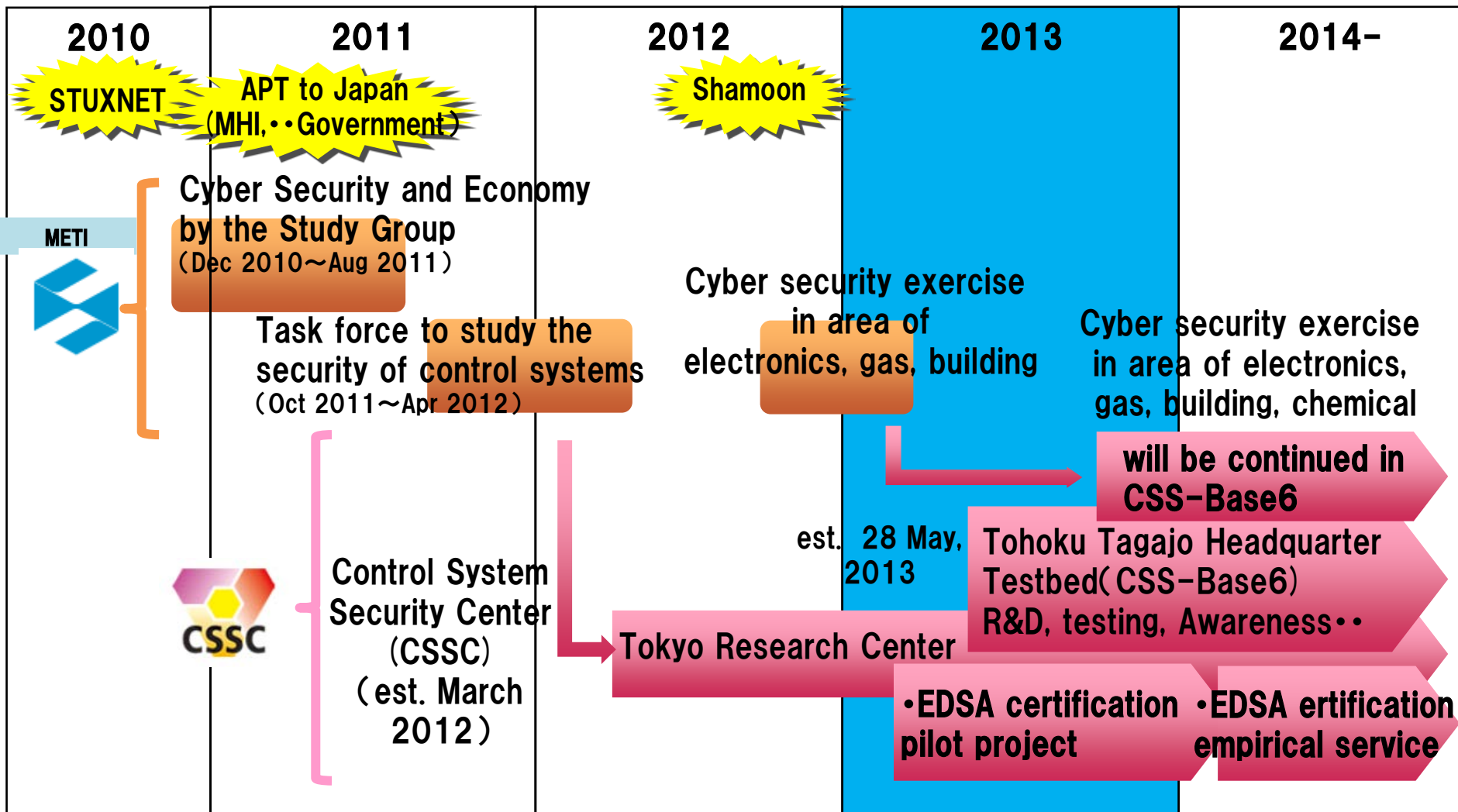
University of Electro-Communications

President

Control System Security Center



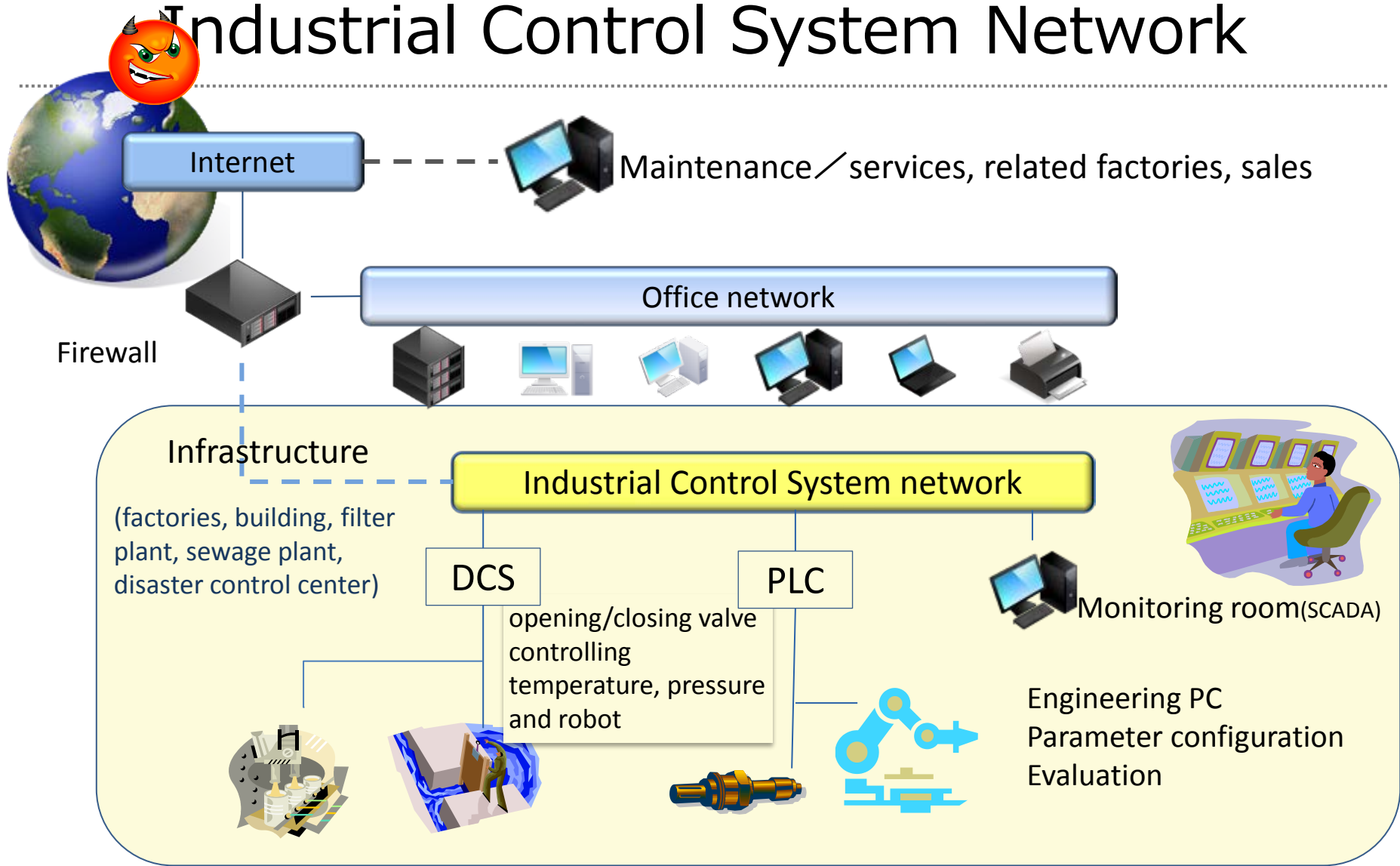
Activities on Control System Security in Japan



◇To ensure ICS security of Japanese critical infrastructure

◇Evaluation and certification for ICS product exporters in Japan

Industrial Control System Network



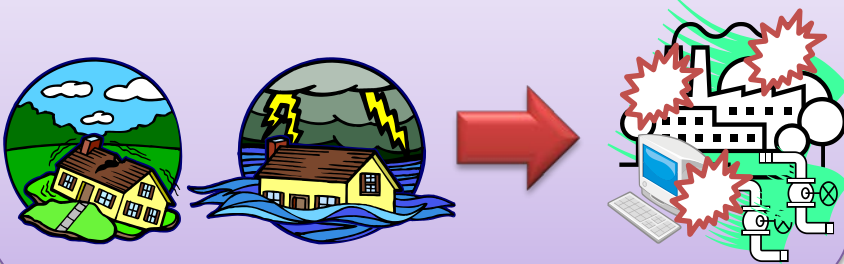
DCS: Distributed Control System
 PLC: Programmable Logic Controller

SCADA: Supervisory Control And Data Acquisition

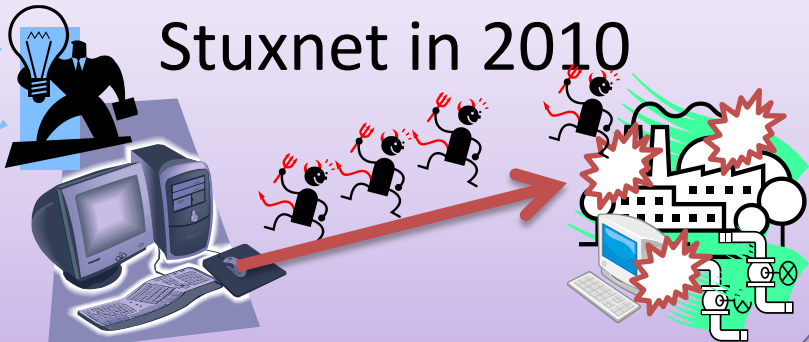
Threat against Industrial Control System (ICS)

- **Cyber attack targeted ICS which surveils and controls power stations and plan operation**
 - Oversea case that plant shutdown for a week overseas
 - Japanese cases that infected 100 PCs of plant facility or shutdown of automation factory systems

Big earthquake in 2011



Stuxnet in 2010



Occurred Events

- System halt
- Non-producible products
- Defective products
- Disappearance of products design/manufacturing information

Occurrences are same

Control System Security Center (CSSC)

■ Organizational overview

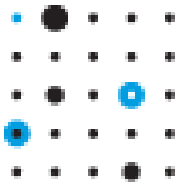
Name	Control System Security Center (Abbreviation) CSSC	Association members (In alphabetical order)	Total 26 corporations (As of Sep, 2014) *8 starting member corporations <ul style="list-style-type: none"> • Advanced Institute of Science and Technology* • ALAXALA Networks Corporation • Azbil Corporation * • Fuji Electric Co., Ltd. • FUJITSU LIMITED • Hitachi, Ltd.* • Information Technology Promotion Agency • Japan Audit and Certification Organization for Environment and Quality • Japan Quality Assurance Organization • LAC Co., Ltd., • McAfee Co.,Ltd. • Mitsubishi Electric Corporation • Mitsubishi Heavy Industries Ltd.* • Mitsubishi Research Institute Inc.* • Meidensha Corporation • Mori Building Co., Ltd.* • NEC Corporation • NRI Secure Technologies Ltd. • NTT Corporation • OMRON Corporation • The University of Electro-Communications, • Tohoku Information Systems Company, Incorporated • Toshiba Corporation* • Toyota InfoTechnology Center Co., Ltd. • Trend Micro Incorporated • Yokogawa Electric Corporation*
	※A corporation authorized by the Minister of Economics, Trade and Industry		
Established	March 6, 2012 (The registration date)		
Location	<p>[Tohoku Tagajo Headquarters (TTHQ)] F21-6F 4-1 sakuragi 3-chome Tagajo city, Miyagi 985-0842 JAPAN</p> <p>[Tokyo Research Center (TRC)] Atago Green Hills MORI tower 21F, 5-1, Atago 2-chome, Minato-ku, Tokyo 105-6221, Japan</p>		

<http://www.css-center.or.jp/en/aboutus/index.html>

International Collaboration

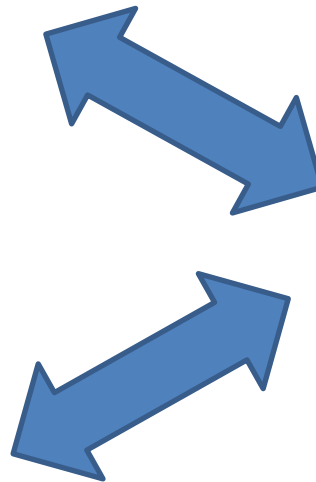


Test Bed and Training

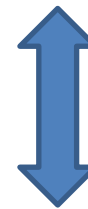


ENCS

Education and Training



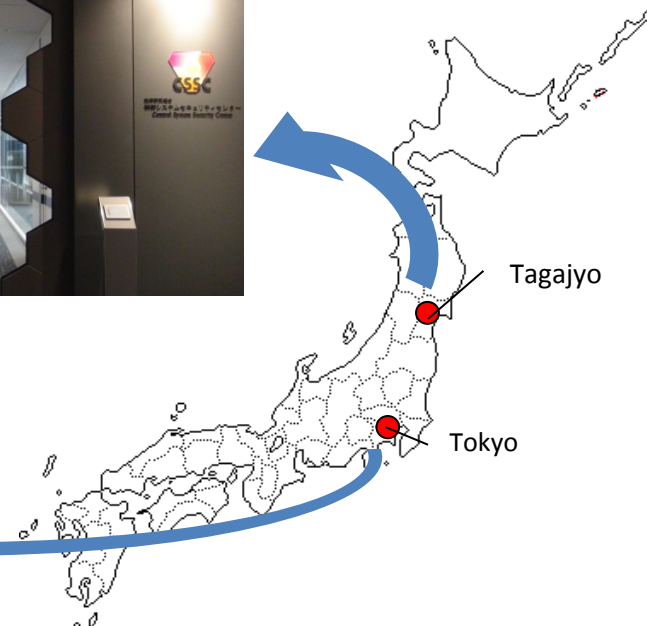
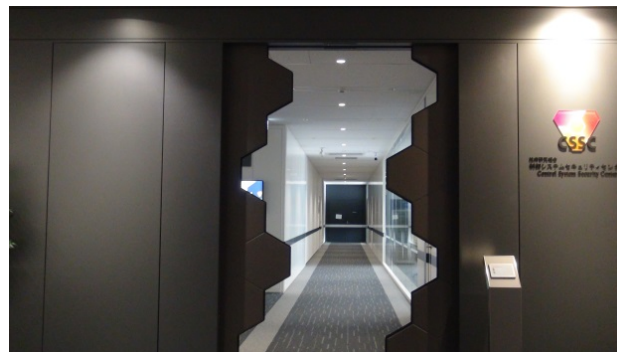
CSSC



Industrial Cybersecurity
Center

OVERVIEWS OF CONTROL SYSTEM SECURITY CENTER (CSSC)

Tohoku Tagajo Headquarters (TTHQ)



Tokyo Research Center (TRC)

Established in March 2013

<http://www.css-center.or.jp/en/index.html>

Seven Test beds in CSS-base 6

Gas Plant



Sewage Plant



■ Research, Development, Promotion, Training, Exercise, etc.



Assemble Plant



Chemical Plant



Building Plant



Smart City)



Electric Power Plant

More Two Test Beds



Assemble Plant II



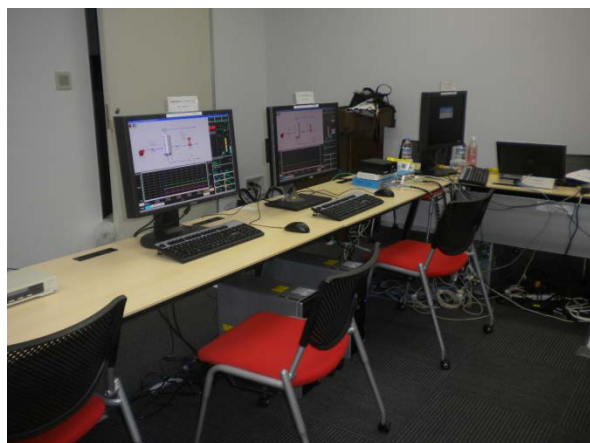
Building Plant II

Defense in Depth

- Anti Virus Software
- Firewall
- Intrusion Detection
- White List
- Logging System and Analysis
- Zoning
- Network Monitoring
- Model Based detection
- Authentication
- More

Cyber Security Exercise for Gas, Electric Power, Building, and Chemical Industries.

Gas Plant



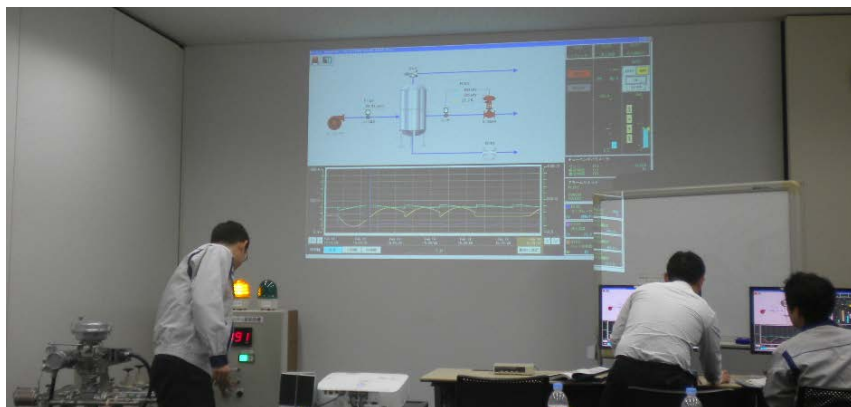
Control Panel



Engineering Station



Tank and Valve

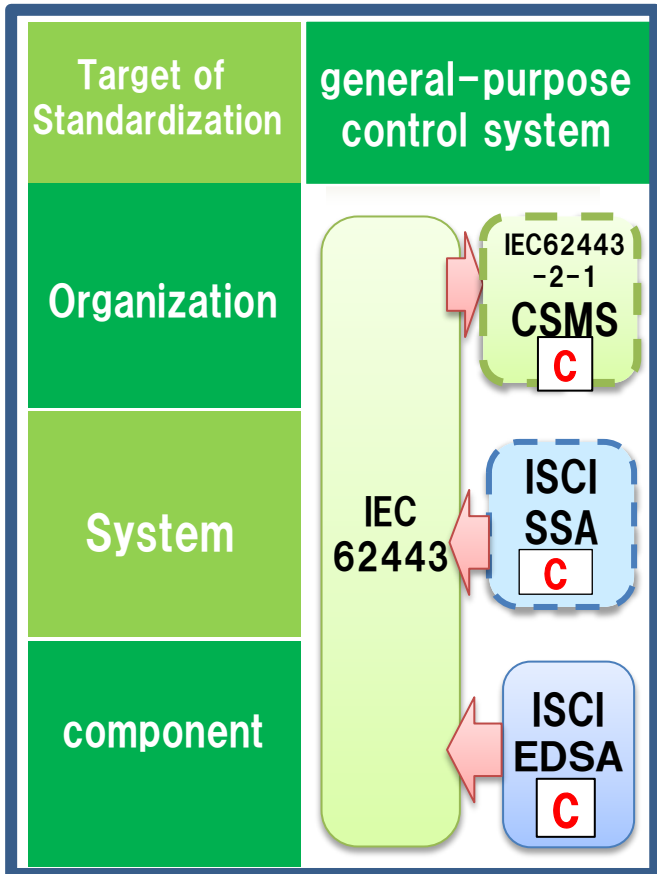


Training

- FY2013--
 - Developing Red/Blue training materials
 - 3 days training for people interested in “functional safety” & control system security (Nov. 20-22)
 - ◆The training is funded by a government agency
 - ◆The training material is based on IEC 62443 and using CSS-Base6 to experience cyber threats and their mitigations.
 - ◆The material will be reused to promote EDSA in Japan
 - Training program on enhancing Information security for ASEAN (Jan. 20-29, 2014)
 - ◆Focusing on ISMS and ICS Security
 - ◆Managers in electric power system plans
 - ◆Heads of ASEAN Power Utilities/ Authorities (HAPUA)

Testing & Certification(Cont'd)

ISA/IEC62443 and ISA/ISCI ISASecure



Certification assures Defense in Depth on Security and Supply on World Wide SCM.

By JIPDEC,
Mitsubishi Chemical Engineering
Yokogawa Solution Service Corporation

Start of Pilot Project in 2015



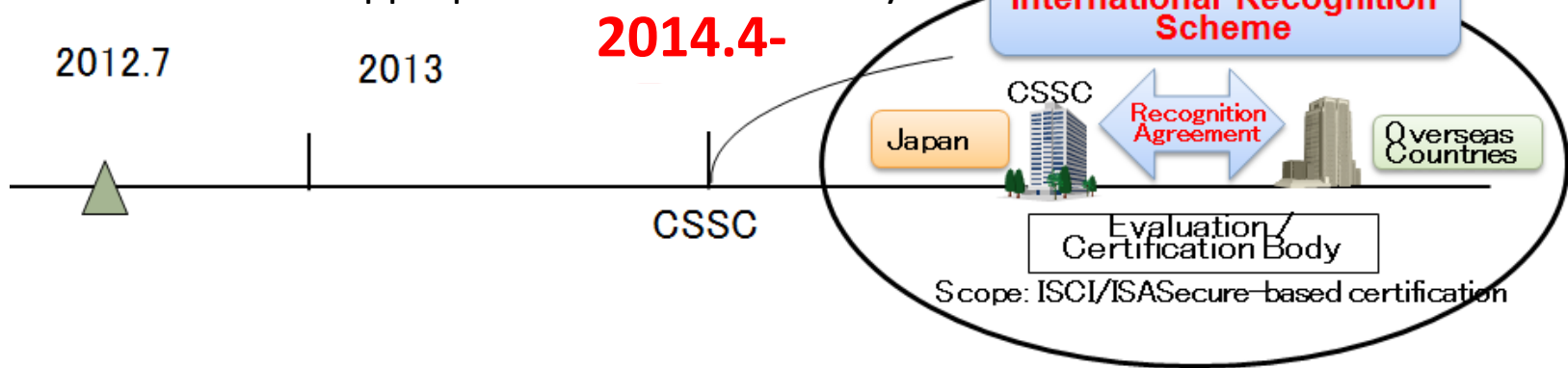
By CSSC from July 2014
Yokogawa, Hitachi, Azbil

Testing & Certification(Cont'd)

Certification Services

Start of applying ISCI certification

- CSSC established Chartered Laboratory last August
- Apply to Japan Accreditation Board (JAB)
- ISCI associate member for ISASecure certification
- Pilot projects of EDSA certification
- JAB' reviews for an appropriate certification body.



<Domestic Evaluation and Certification Trial>

<International Recognition Scheme>

<Utilization of Research Output>



Trial operation of a domestic evaluation and certification scheme

Establishment of an international recognition scheme for an ISCI/ISASecure-based certification

Utilization of the output of CSSC research

ISCI : ISA Secure Compliance Institute

Testing & Certification(Cont'd)



CENTUM VP of Yokogawa

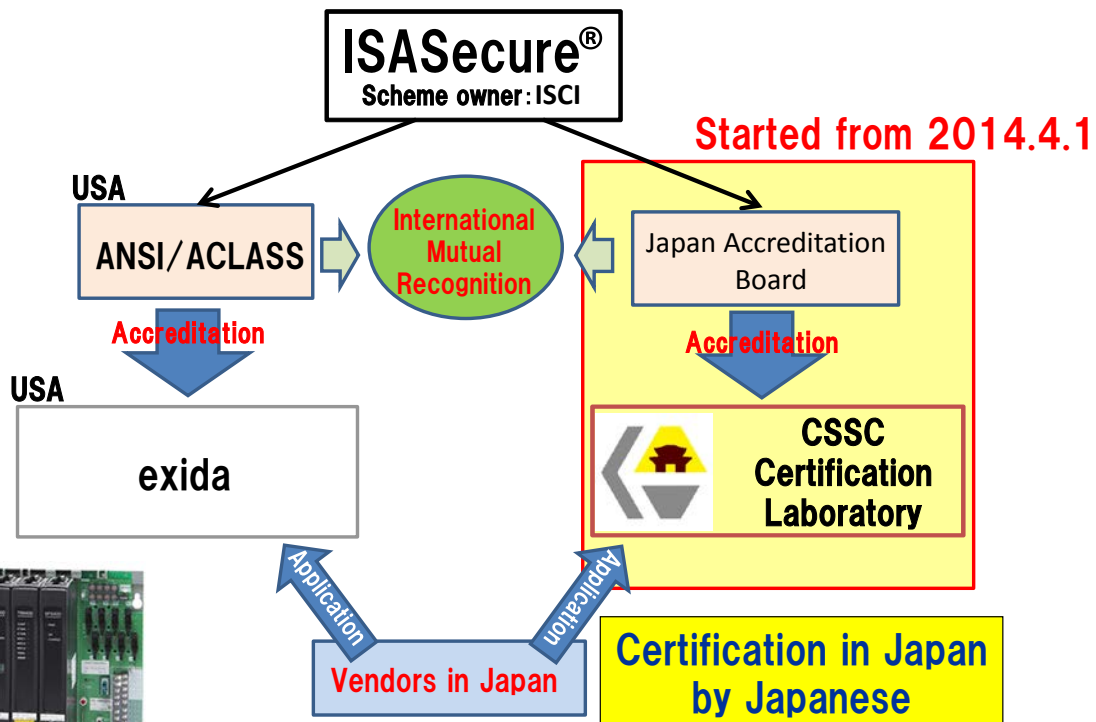


HISEC 04/R900E by Hitachi



Harmonas/Industrial-DEO/Harmonas-DEO用
プロセスコントローラ DOPCIV

Harmonas by Azbil



Conclusion

- CSSC will work for cyber security of critical infrastructure.
- CSSC will continue global collaboration.

