

PLUG-IN
2010 

**PEV Standards
Process and Status**

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- **SAE standards**
- **ISO/IEC standards**
- **ISO/IEC Timeline**
- **Plan A & B**
- **PEV Timeline**

Summation of SAE Standards

J2836™ – General info (use cases)

Dash 1 – Utility programs

Dash 2 – Off-board charger communications

Dash 3 – Reverse Energy Flow

Dash 4 – Diagnostics

Dash 5 – Customer and HAN

J2847 – Detail info (messages, diagrams)

Dash 1, 2, 3, 4 & 5 - Same as J2836™

J2931 – Requirements and protocol

Dash 1 – General info

Dash 2 – Inband Signaling – J1772™

Dash 3 – PLC over power circuits

Map/flow chart of standards

J2836/1™ & J2847/1

Utility Programs

U1: TOU – Time of Use

U2: DR - Direct Load/Price Control

U3: RTP (Active Management)

U4: CPP - Critical Peak Pricing

U5: OET - Optimized Energy Transfer

Connection methods

- S1: Cordset EVSE
 - (120V AC to vehicle)
- S2: Premise EVSE
 - (240V AC to vehicle)
- S3: Premise EVSE w/Off-Charger
 - (DC to vehicle)

Locations

- L1: Home:
 - Connects at premise
- L2: Another's Home
 - Inside the utility's service territory &
 - A: premise pays tariff
 - B: customer pays tariff
- L3: Another's Home
 - Outside the utility's service territory
- L4: Public:
 - Curbside, workplace, business, multi family dwelling

Map/flow chart of standards

J2836/2™ & J2847/2

Communication with the off-board charger in the EV Supply Equipment (EVSE) – DC Energy to PEV

J2836/3™ & J2847/3

- Reverse Energy Flow
 - V2G (Vehicle to Grid)
 - V2H (Vehicle to Home)
 - V2L (Vehicle to Load)
 - V2V (Vehicle to Vehicle) - later

J2836/4™ & J2847/4

- Diagnostics – Charging system plus more (as desired)

J2836/5™ & J2847/5

- Customer specific messages & HAN
 - Expected charge times
 - Energy statistics
 - Charge station info (driving circles)

Status of Standards

(Initial versions planned for publishing,
then additional testing and re-ballot with updates)

J2836/1™ & J2847/1 – Utility requirements

J2836/1™ Published March, 2010. J2847/1 published June, 2010.

J2836/2™ & J2847/2 – DC charging

Planned 3Q 2010

J2836/3™ & J2847/3 – Reverse energy flow

Kickoff June, 2010 (V2G, V2H & V2L are initial approaches).

J2836/4™ & J2847/4 – Diagnostics

Planned kickoff 3Q, 2010.

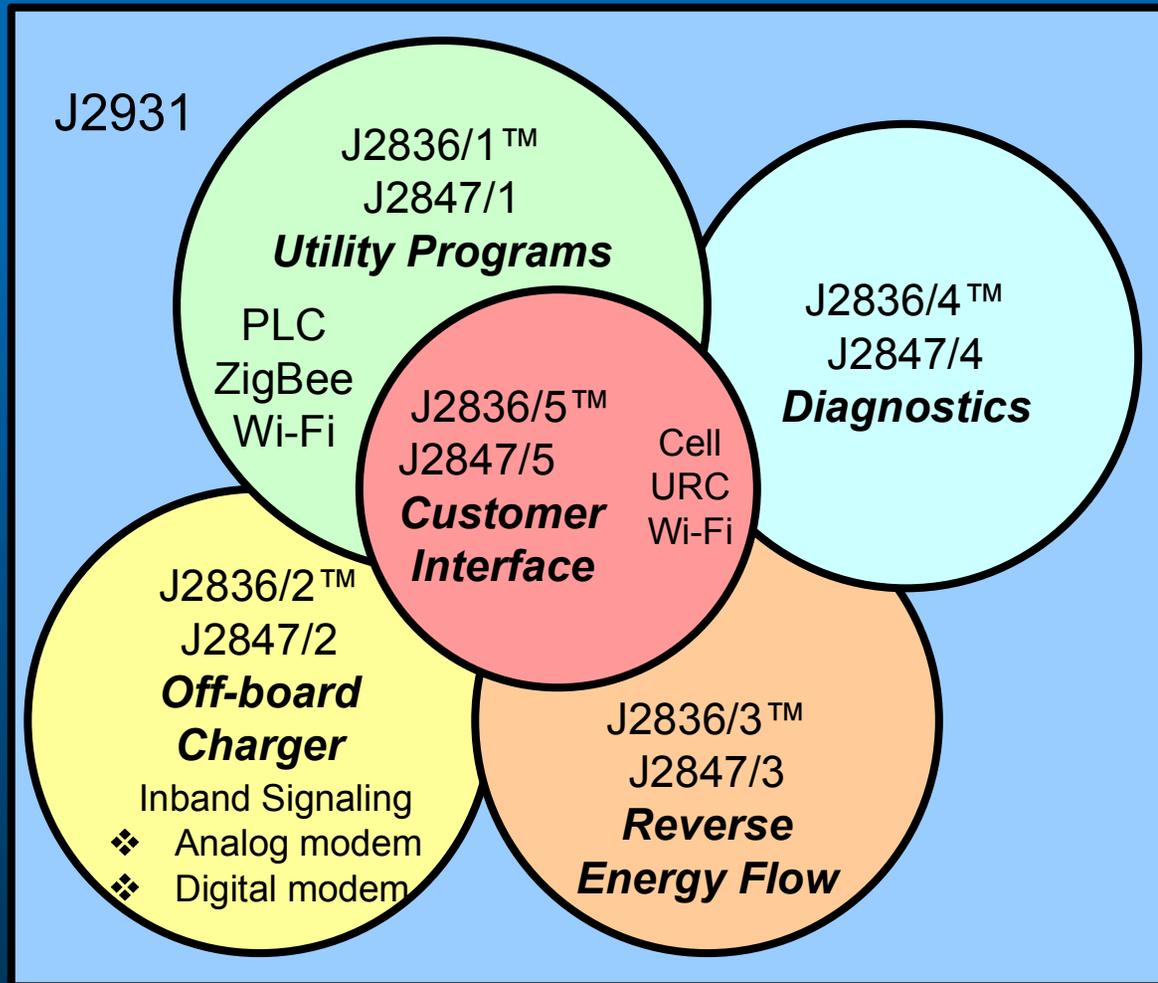
J2836/5™ & J2847/5

Initial messages started with /1 docs and expected kickoff 3Q, 2010.

J2931 /1, /2, /3 & /4??

Kickoff March, 2010. Expected initial ballot 3Q, 2010.

Map/flow chart of standards



ISO/IEC Standards

ISO/IEC
V2G CI PT
structure

Layer

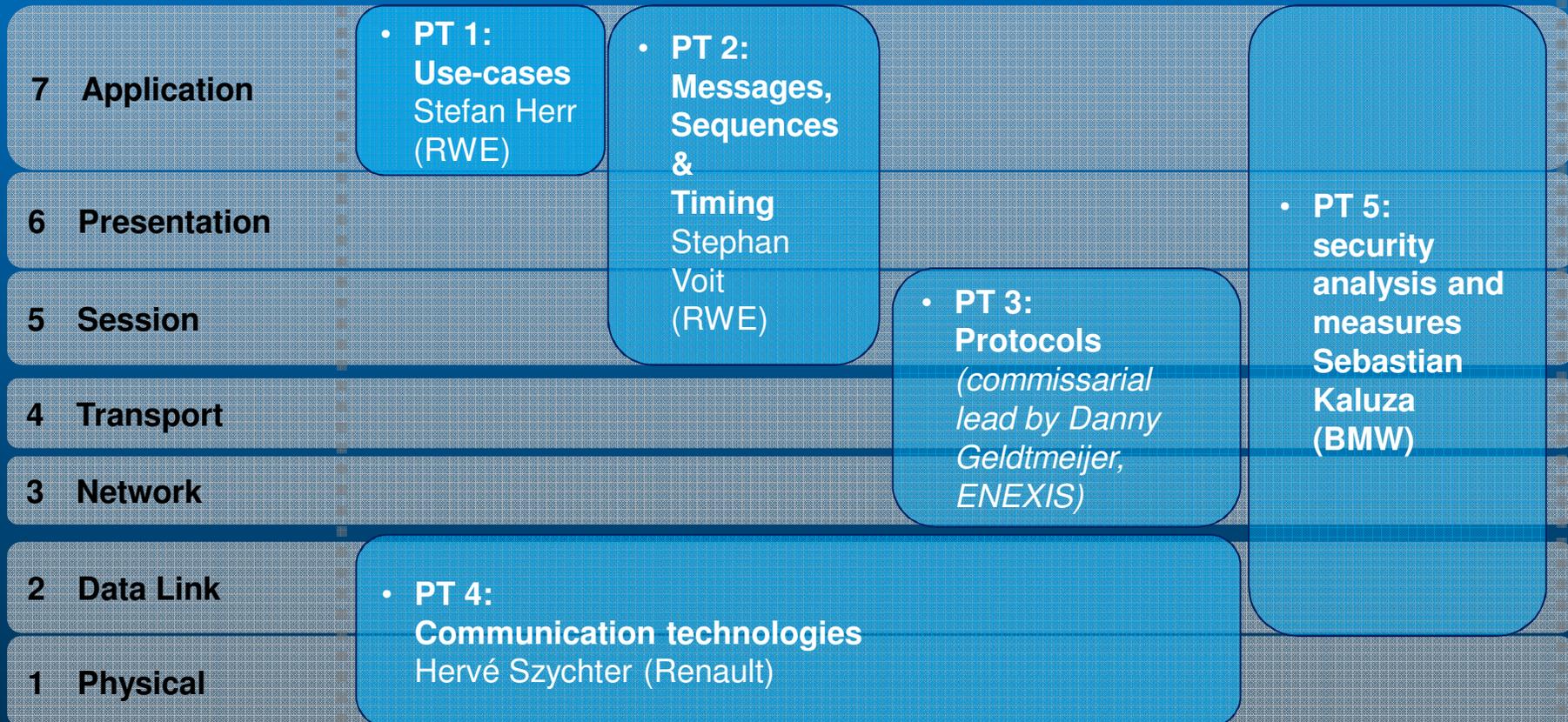
ISO/IEC Vehicle to Grid – Communication Interface



TC69
Cyriacus Bleijs (EDF)

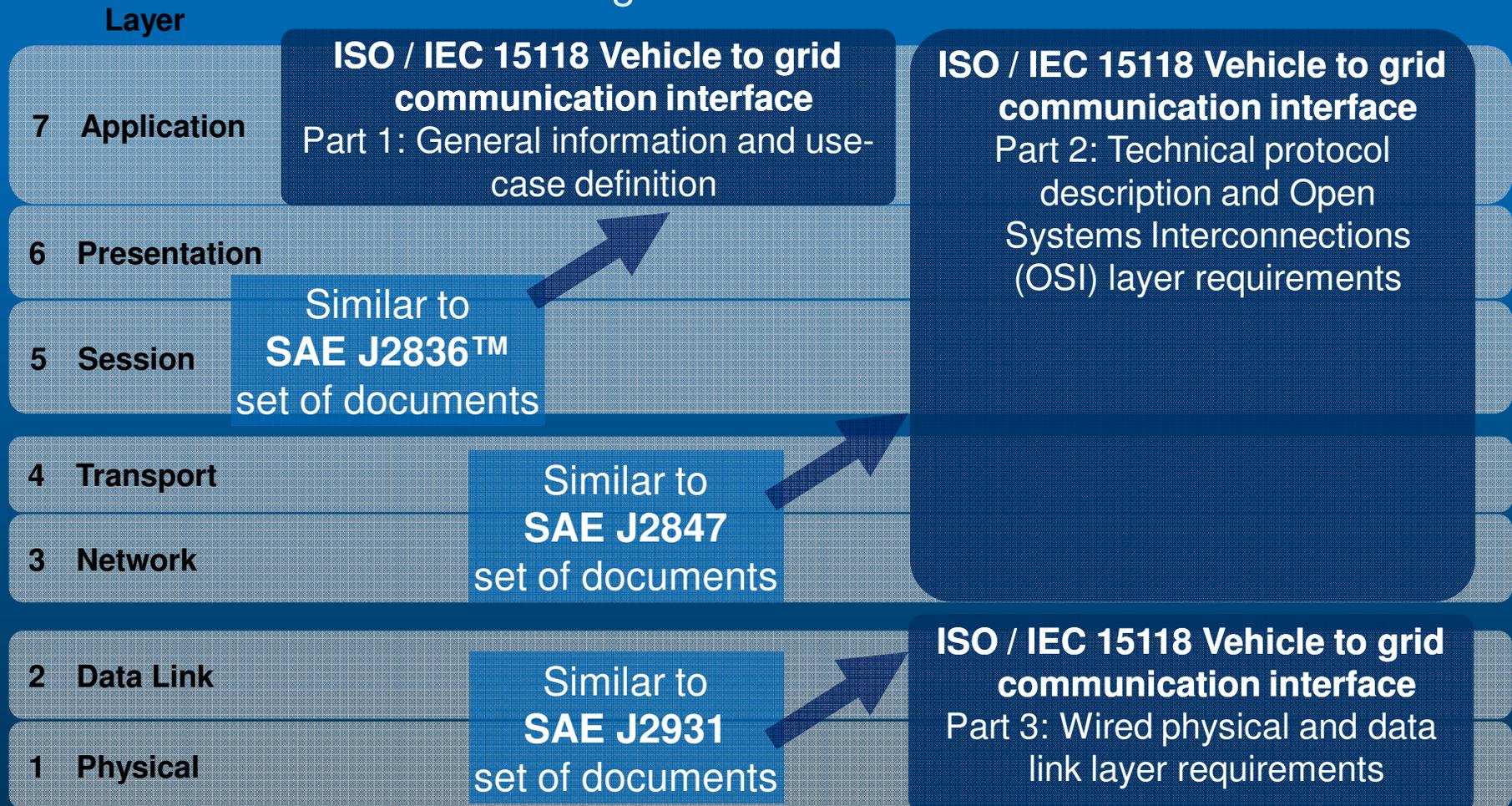


TC22/SC3/JWG1
Christoph Saalfeld (Daimler)

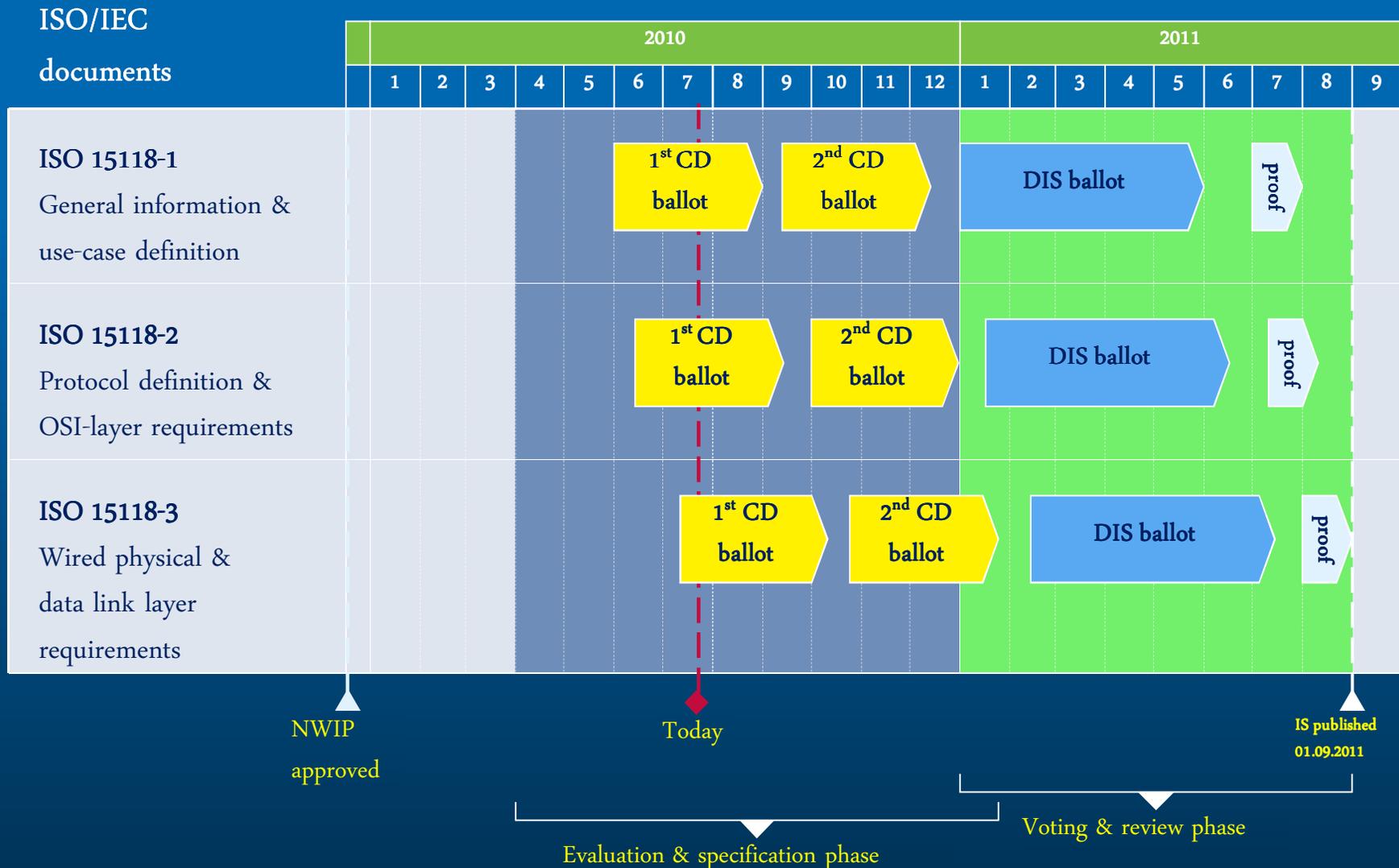


ISO/IEC Standards (cont)

ISO/IEC Road vehicles — Communication protocol between electric vehicle & grid - Document structure



ISO/IEC 15118 document set creation timeline



Plan A **The long term plan (A)**

PEV communicates with the utility &/or HAN

Requirements

Auto qualified parts

Simple, cost effective system

Issues

J1 (PEVs) was two years ago

EVSEs may be upgraded easier than PEVs

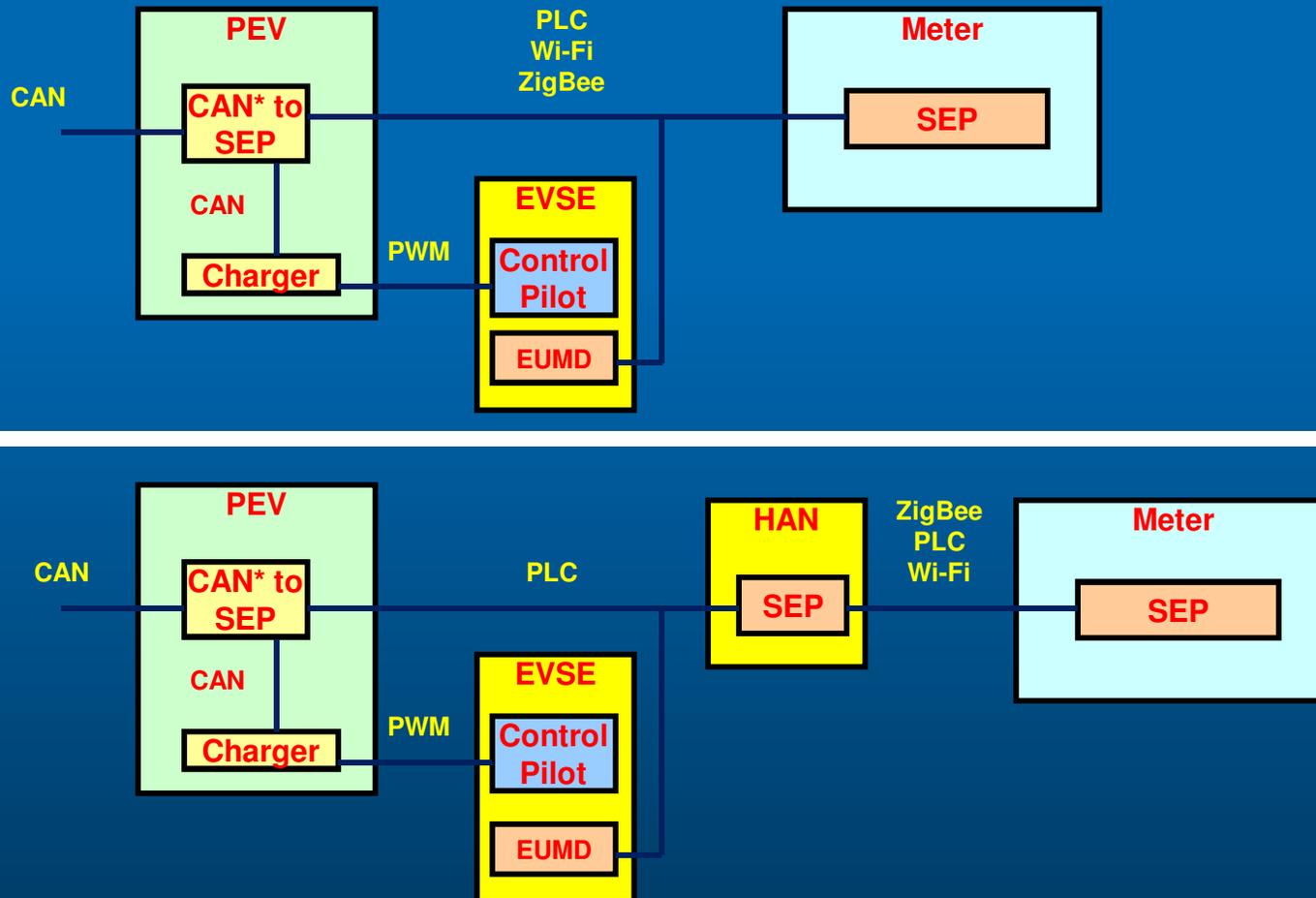
We are still testing and evaluating (& selecting)

SEP 2.0 stack is still being developed this year

Projected roll-out

Two more years (with current level of effort)

Plan A - Architecture



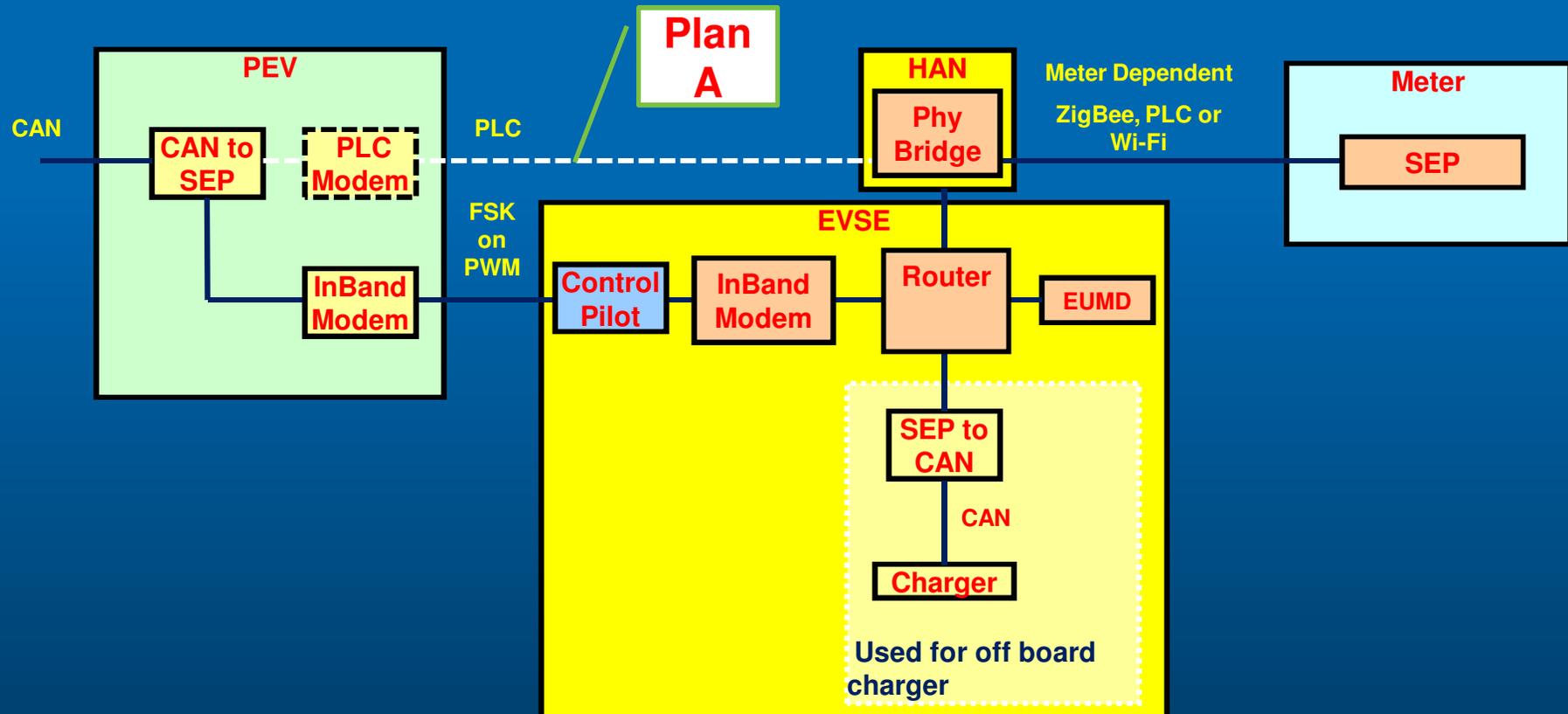
* CAN is referred to as “the vehicle communication medium” and the PEV will always include a bridge to off-board communication.

The short term plan (B)

•Plan B

- PEV (BECM) communicates with the EVSE (off-board charger)
- Requirements
 - Simple, point-to-point, stand alone or integrated
- Issues
 - Also short time frame (BEV's need it now)
- Projected roll-out
 - Continue test May and June, 2010
 - Incorporate in J2931/2 June and July, 2010 (standard)
 - Production qualified part 3Q 2010

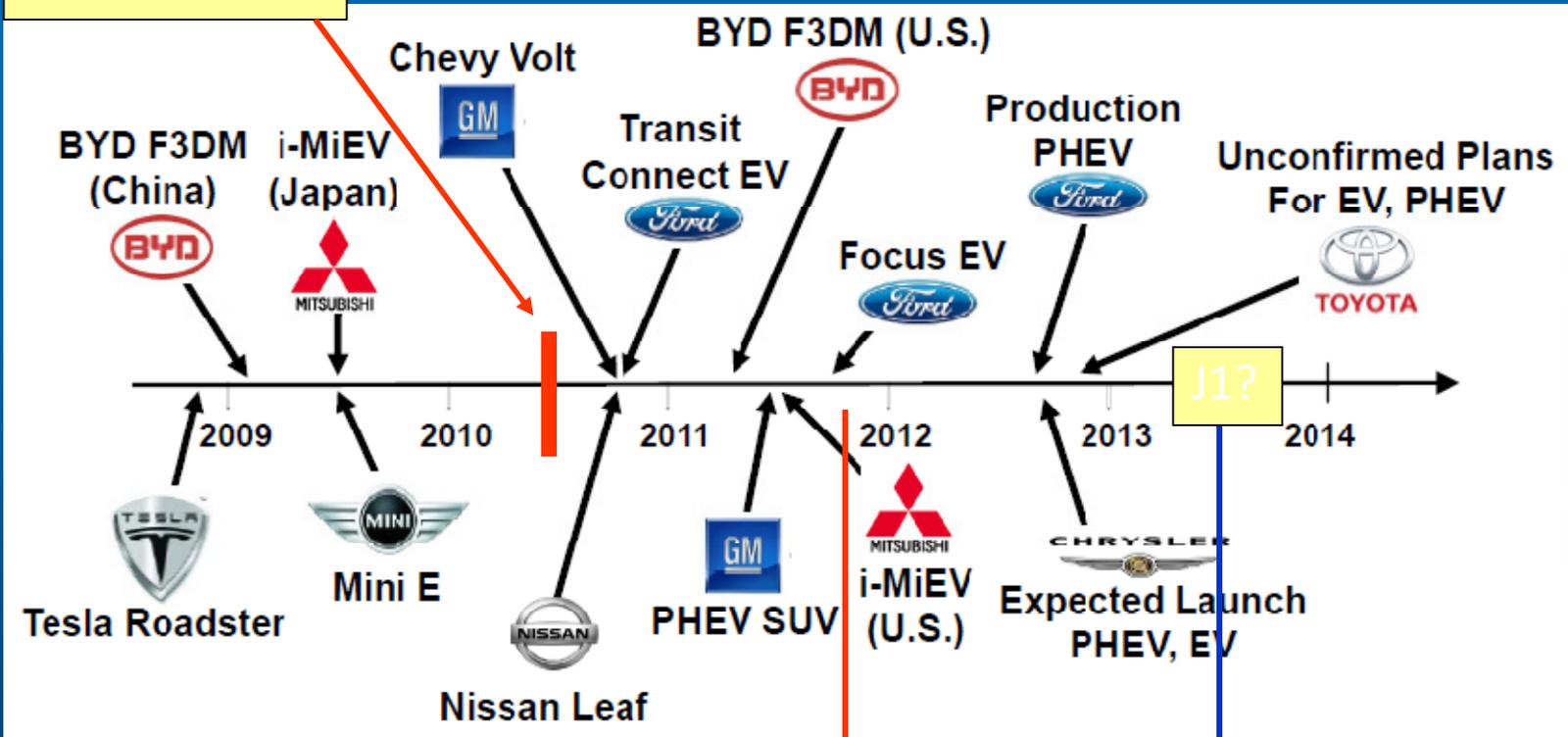
Plan B - Architecture



- Assumes Inband signaling is Analogue Modem.

PEV Timeline

We are here



Plan B

Test and Selection Process

Implement

Plan A

Test and Selection Process

Implement

