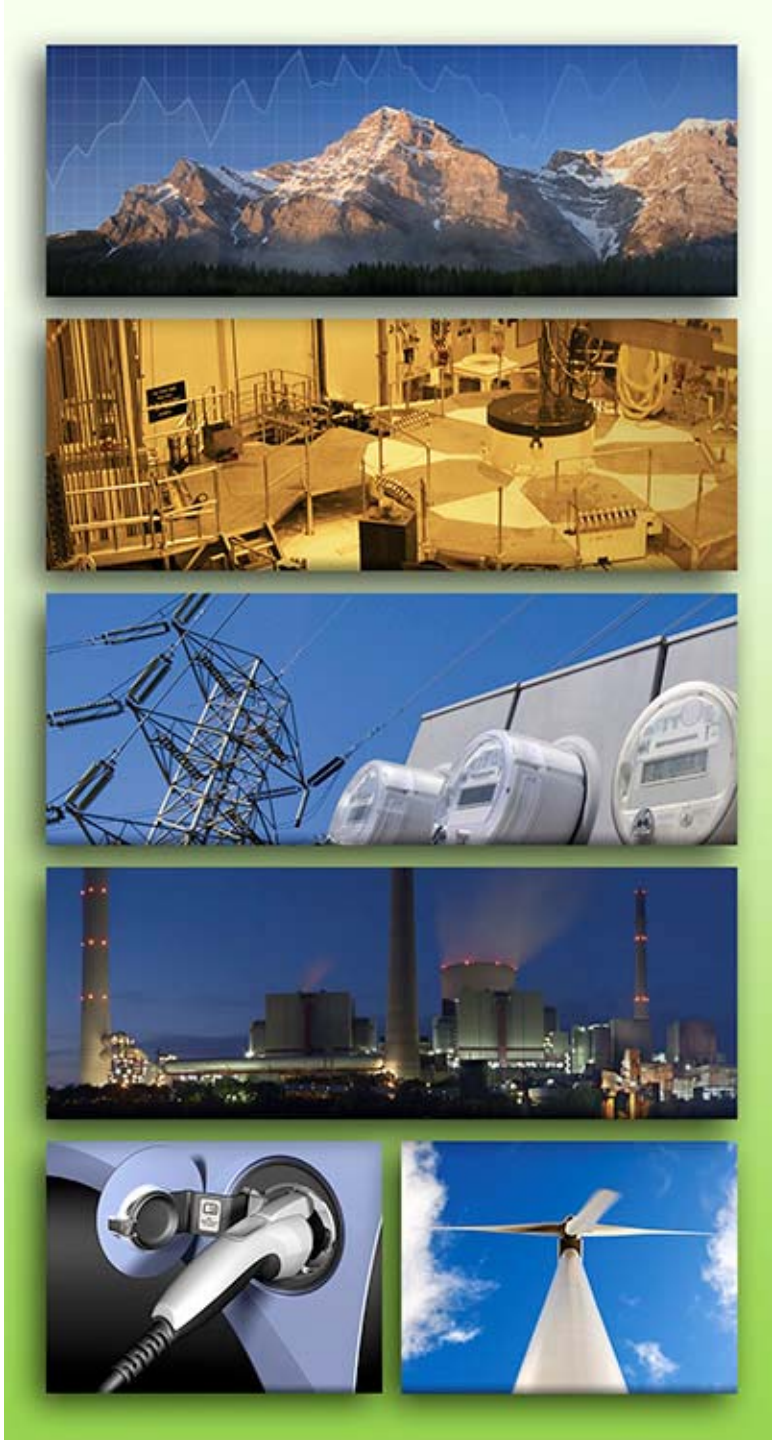

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Modular Interface for Residential Devices

SGIP / H2G DEWG

March 30th, 2011

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USNAP ALLIANCE

Lessons Learned From The Computer Industry

USNAP ALLIANCE

Smart Grid Device **(SGD)**

Universal Comms Module **(UCM)**

Universal Smart Grid Device Connectivity !

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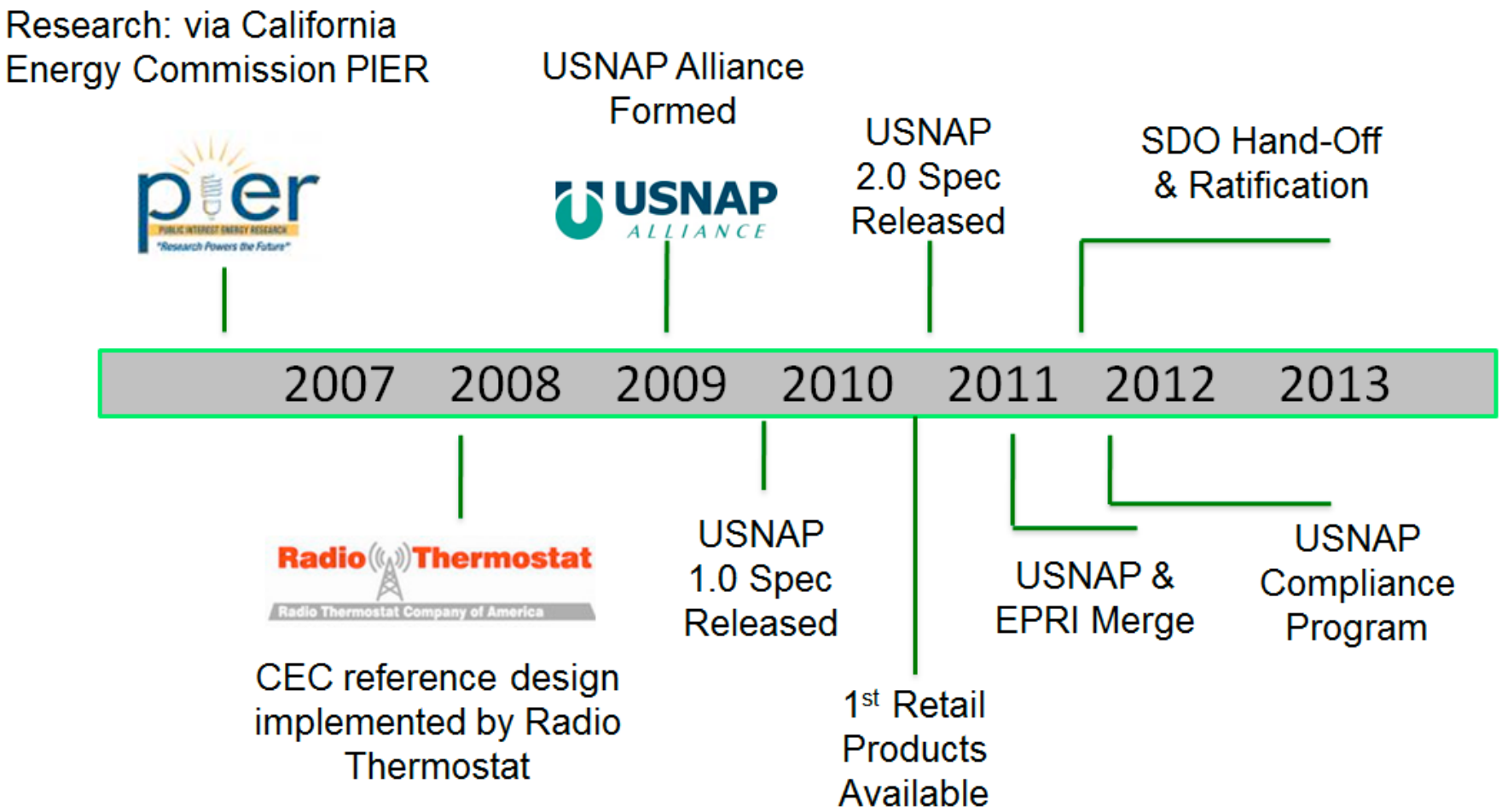
USNAP Timeline



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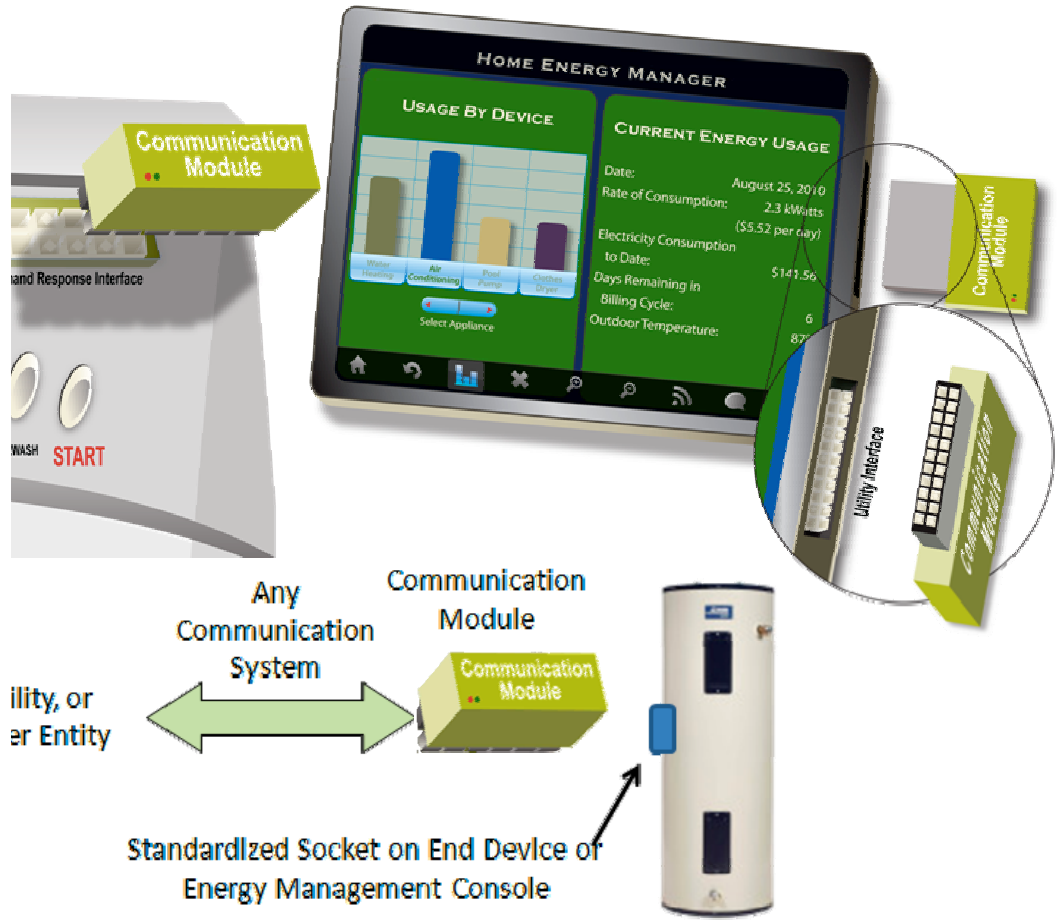
A Standard for a Modular Utility Interface

- A Simple Interface for Demand Response of Residential Devices
- Accelerates Availability of DR-Ready Devices for both HAN and DLC Programs
- One Appliance (SGD) Works with any Communication Device (UCM)
- One Communication Device Works with any Appliance
- Low Cost Impact on Appliances, Owner Installation Made Possible
- Communication systems can evolve without obsoleting the end device



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Specification Merger

NEMA

IEEE

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CEA Consumer Electronics Association

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H2G DEWG: Merge the Two Specifications

Research Interest

Open Industry Collaborative

- End Device Manufacturers
- Communication System Providers
- Utilities

2 year activity

Use-cases → Requirements → Specification

- Established Industry Organization
- Completed Collaborative 2.0 Specification Dec 2010
- Existing Products in Market and on Retail Shelves
- Focus: Brand Marketing, Conformance & Specification Evolution

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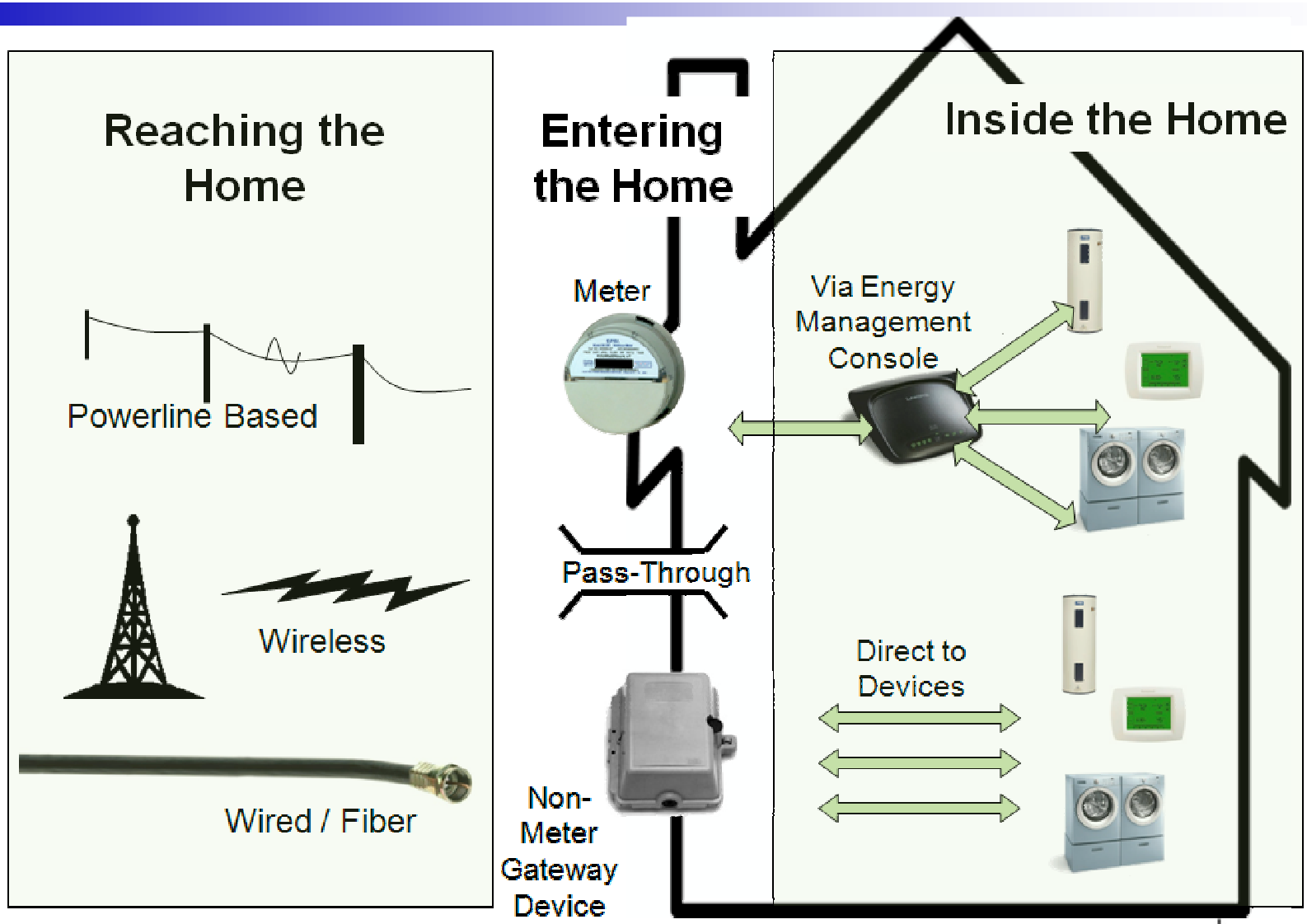
Demand Response Communication Architectures



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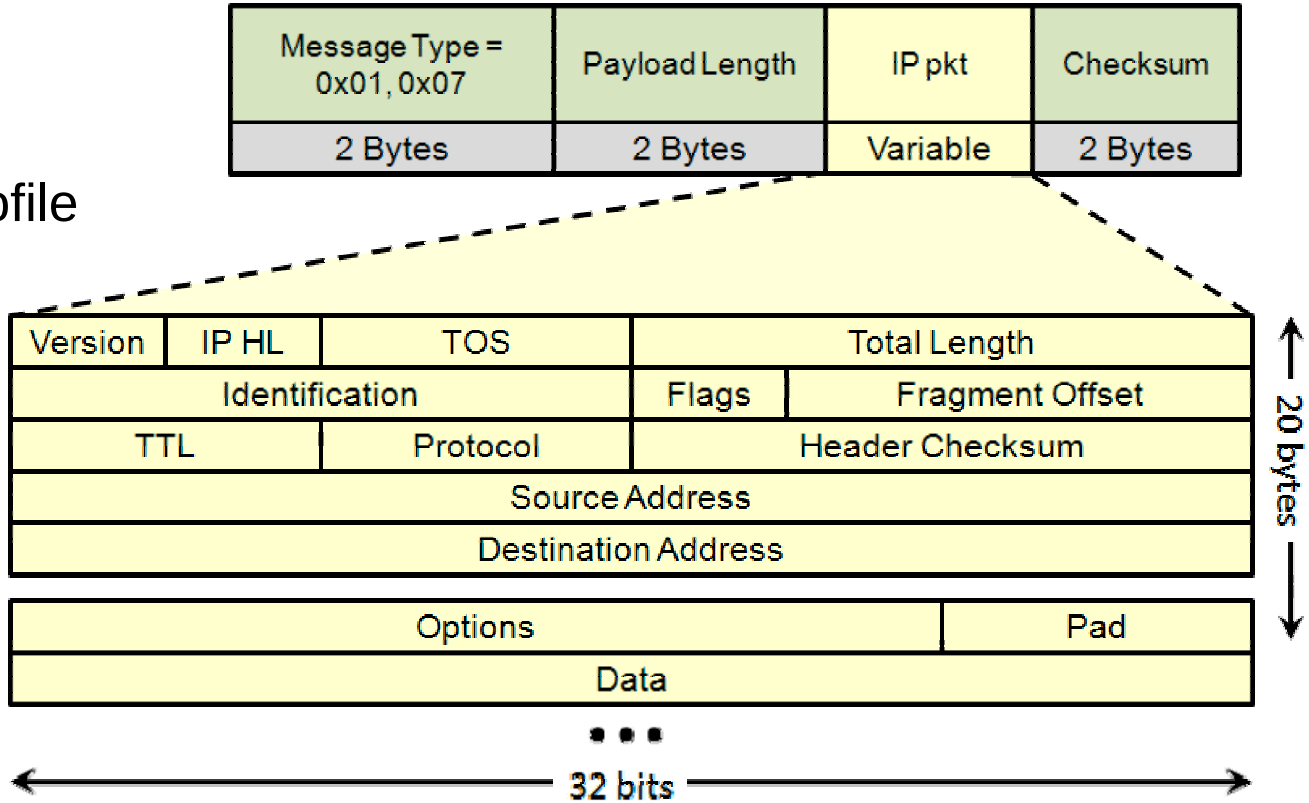
Key Merged-Interface Characteristic:
Leveraging of Existing Industry Standards

Allows for lower layer diversity for pass-through of standard protocols:

- Internet Protocol
- Smart Energy Profile
- OpenADR
- ClimateTalk
- Etc.



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Key Merged-Interface Characteristic:
Interoperability

When any universal communication module (UCM) is connected to any end device (SCM), “it just works”, in the sense that at least basic demand responsiveness is enabled

- Achieved through the definition of a minimized set of basic commands that all devices fall-back on if standard pass-through commands are not supported by the device they are connected to

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Key Merged-Interface Characteristic:
Both AC and DC Form Factors

DC Form Factor

Smaller, supports battery powered devices

AC Form Factor

Supports PLC communication modules, keeps power supply cost in the module, enables local voltage and frequency monitoring by DR modules

Interest in Other Form Factors

New form factors might be more optimized, more rugged, more reliable, etc.

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Project Timeline

- Dec — Request from H2G DEWG
- Jan — Formal project launch
- March — Basic message format & commands
- April — Complete method for transport of upper level "pass through" messaging
- May-June — Draft new harmonized spec document
- June 1-14 — Final committee review and edits
- June 15-20 — Spec complete and ready for presentation
- June-July — H2G DEWG review process
- August — Official handoff to SDO – (CEA, IEEE, NEMA)

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