

**Applied *Privacy by Design*:**  
**The Smart Grid**

[www.privacybydesign.ca](http://www.privacybydesign.ca)



# The Challenge

“In order for the Smart Grid to grow and become truly successful, it will *have* to engender consumer confidence, trust, and respect for user privacy.”

Ontario Information and Privacy Commissioner,  
Ann Cavoukian, Ph.D.



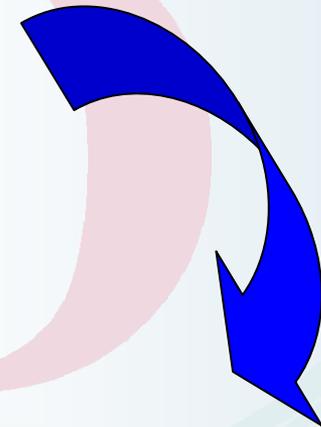
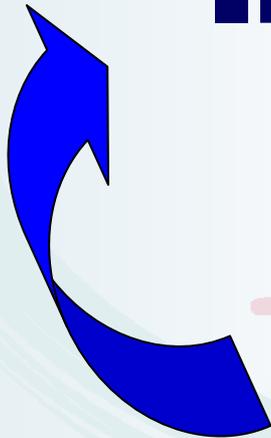
# The Smart Grid: What is it?

*A two-way flow of*

**Information**

*and*

**Electricity**







# Imagining the Future: Elements of the Smart Grid

***Smart Meters***

***Load Management***

***Smart Appliances***

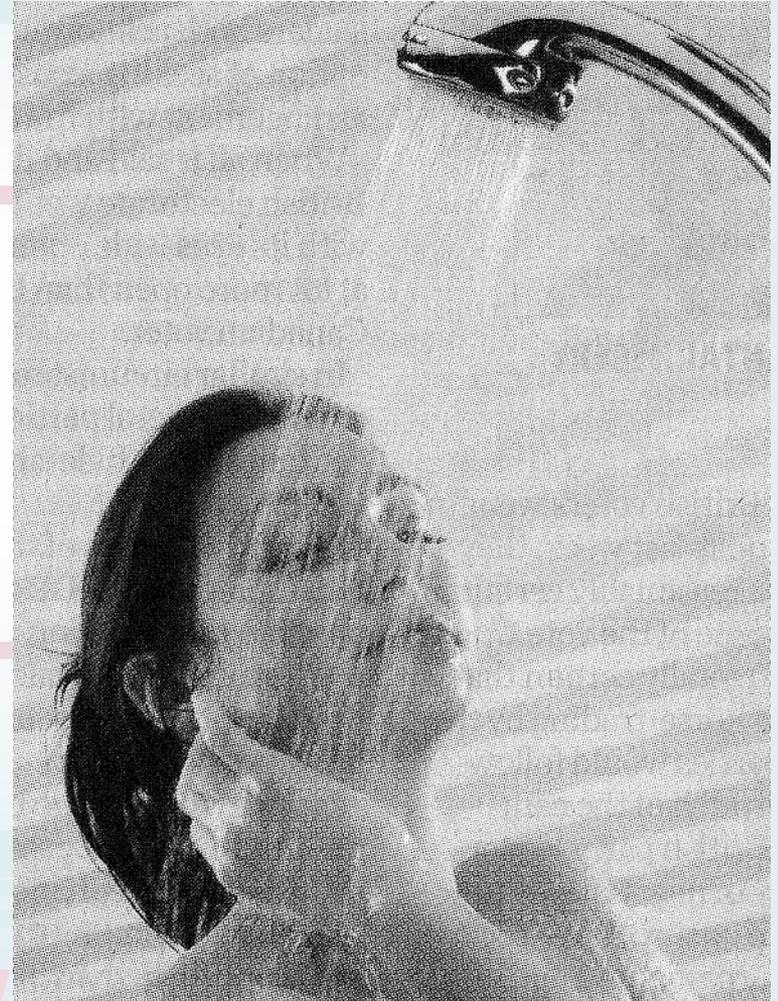
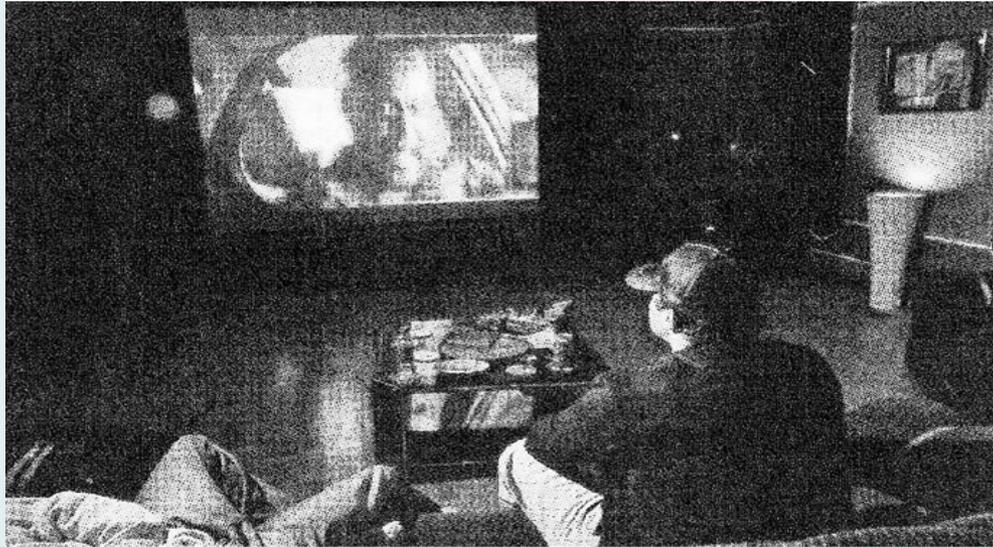
***Dynamic Pricing***

***Access to Energy  
Information***

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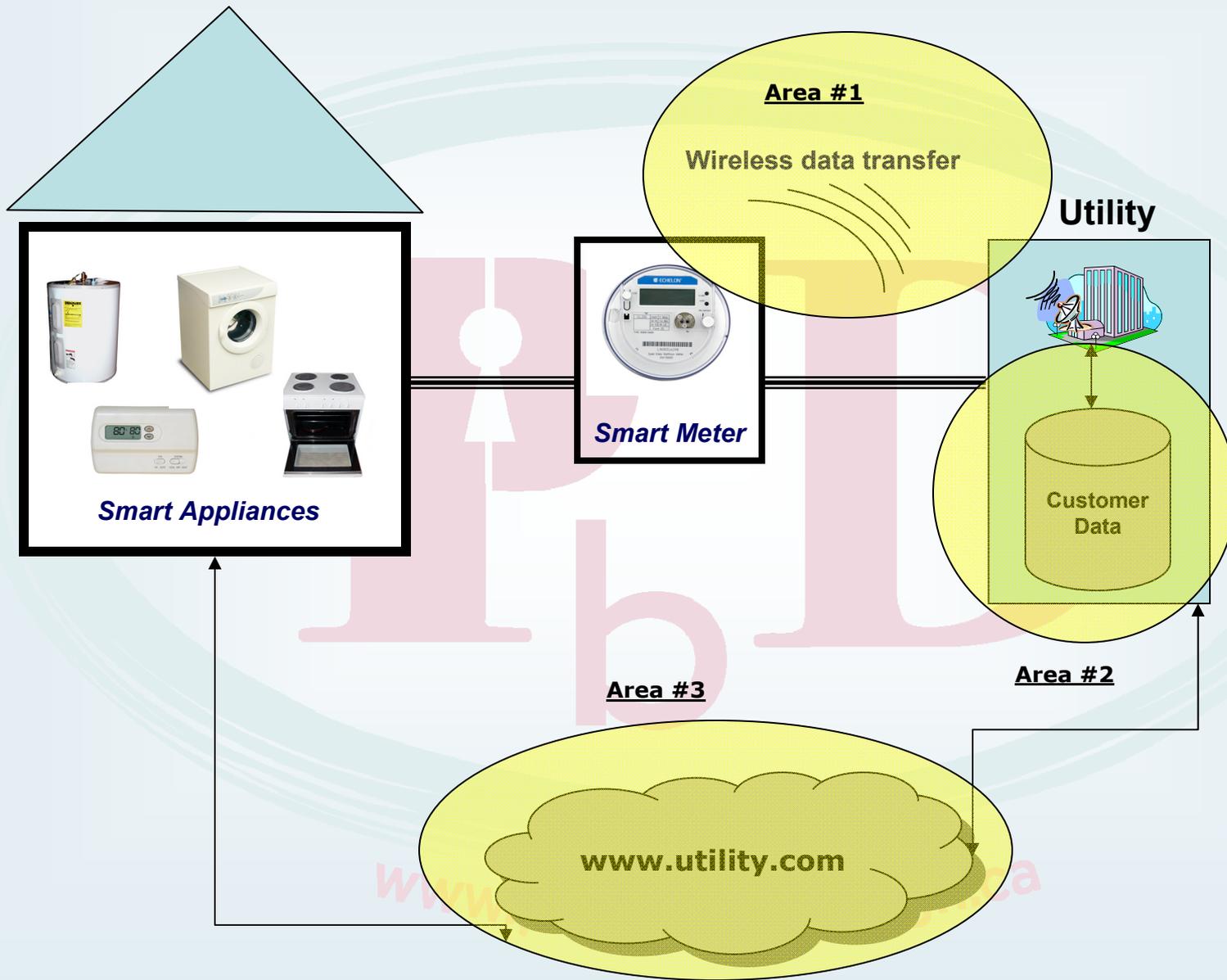


# Home: The Most Private of Places





# Key Privacy Risk Areas





# Setting the Standard

“At the end of the day, it’s all about standards. If we get that right at the outset, we create an ecosystem for the development of technologies that will thrive in the present and future.”

Chuck Adams, President of IEEE  
(Institute of Electrical and Electronics Engineers)



# Smart Grid *Privacy by Design*

**SmartPrivacy for the Smart Grid:  
Embedding Privacy into the Design of  
Electricity Conservation**



November 2009

THE FUTURE OF PRIVACY FORUM  
[www.futureofprivacy.org](http://www.futureofprivacy.org)



**Privacy by Design:  
Achieving the Gold Standard  
in Data Protection for the Smart Grid**



June 2010





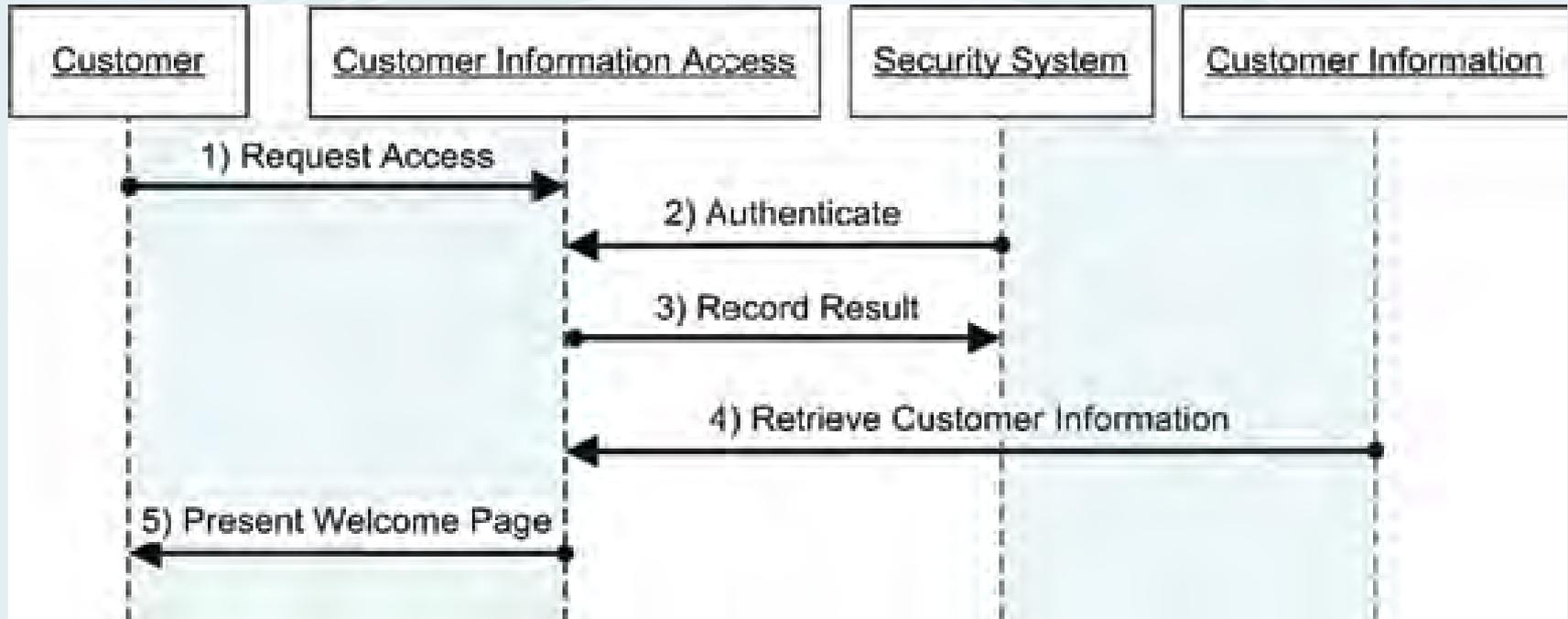
# Best practices

The Smart Grid shall:

1. Be proactive, not reactive
2. Build in privacy as the default
3. Embed privacy into its design
4. Avoid false trade-offs between objectives
5. Build in privacy end to end
6. Be visible and transparent
7. Treat consumer privacy as a core functional requirement



# Simple Application of *PbD*: Online Customer Information Request

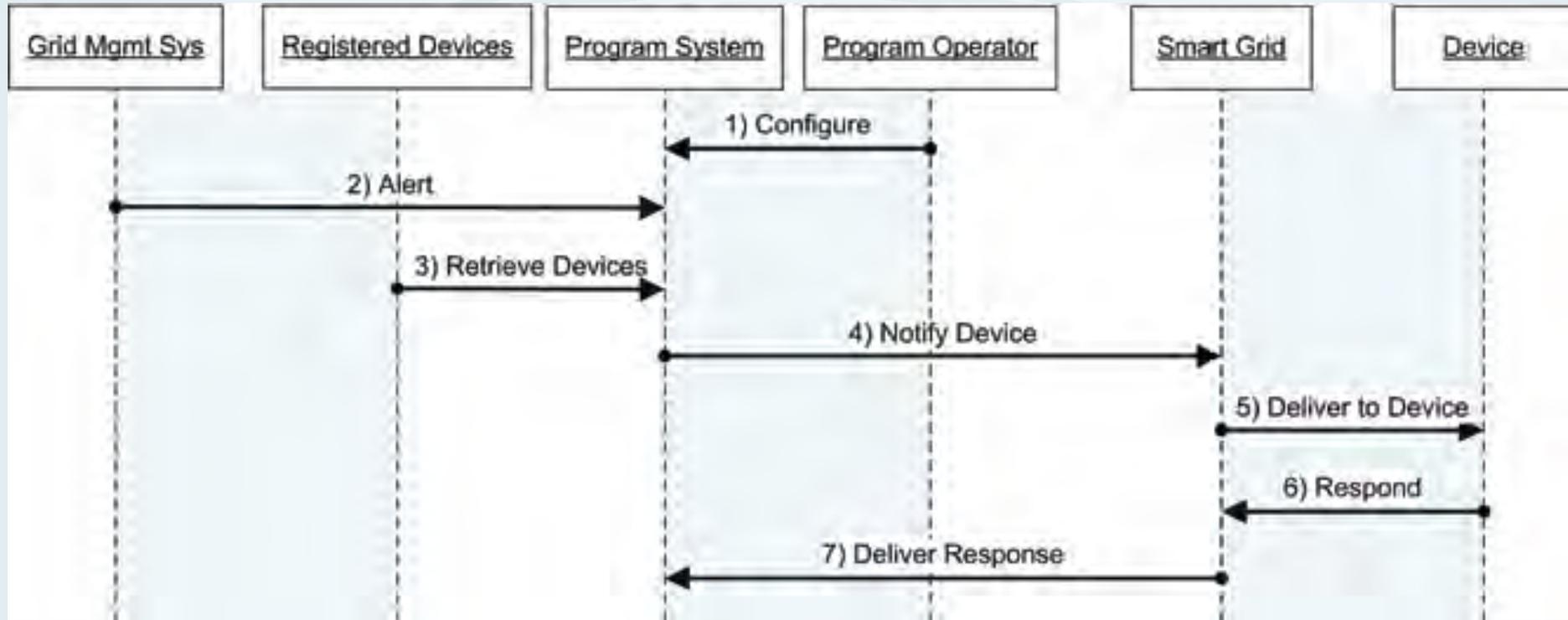


***Sequence Diagram for Customer Information Access***

From IPC, Toronto Hydro and Hydro One, *Privacy by Design: Achieving the Gold Standard in Data Protection for the Smart Grid*, p. 21



# Advanced Application of *PbD*: Load Management Program

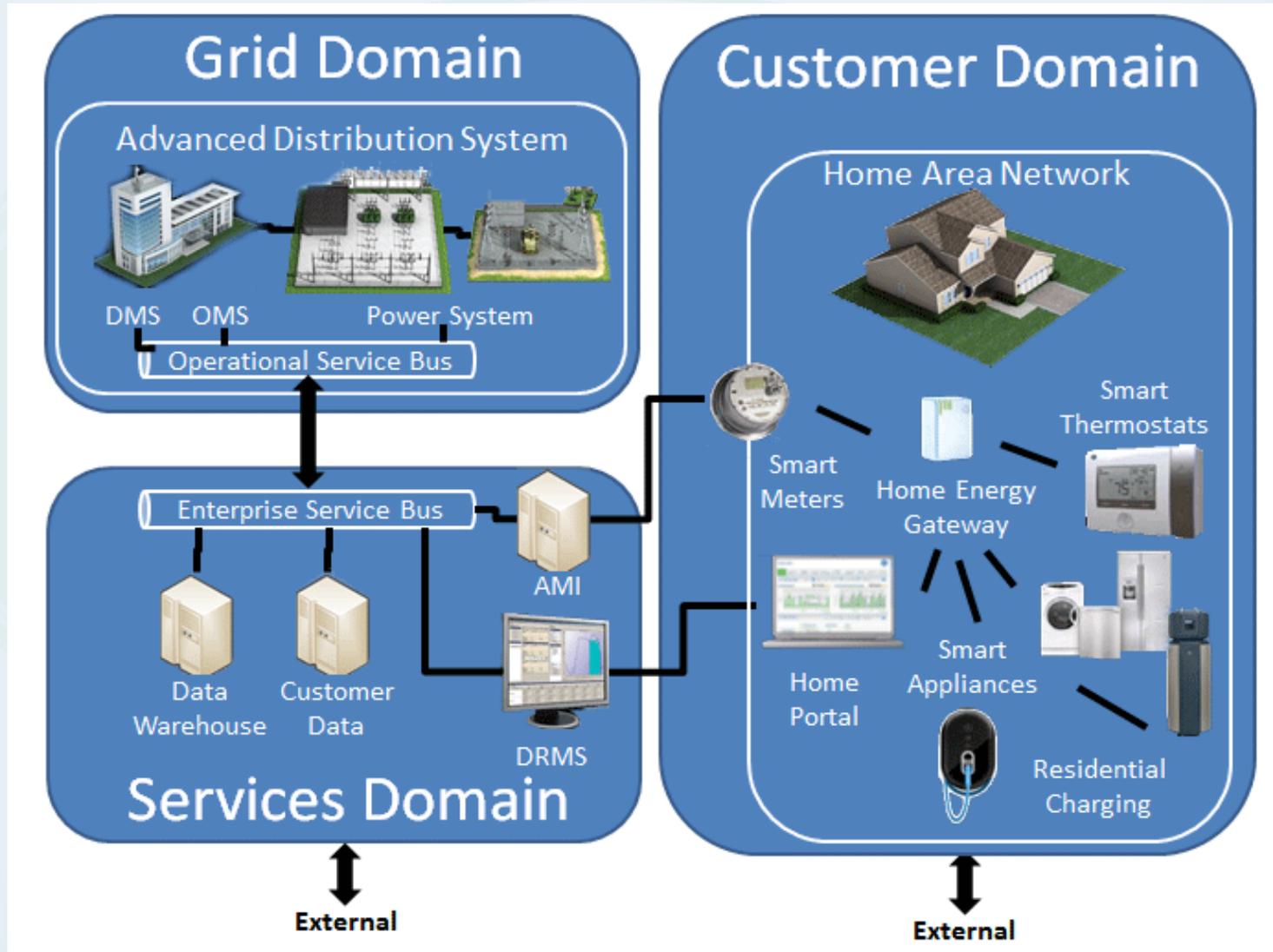


***Sequence Diagram for Usage  
(Part of Customer Enablement in the Smart Grid)***

From IPC, Toronto Hydro and Hydro One, *Privacy by Design: Achieving the Gold Standard in Data Protection for the Smart Grid*, p. 24



# The Big Picture: A Privacy Perspective on the Smart Grid





# Benefits of Embedding Privacy at the Design Stage

- ✓ Clarification of relationship between business and privacy requirements
- ✓ Good business practice that enhances consumer confidence and trust
- ✓ Supports energy conservation by removing barriers to consumer participation
- ✓ Cost-effective and secure

**More information and a growing library of resources are available at**

**[www.privacybydesign.ca](http://www.privacybydesign.ca)**

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