Integrated Energy Network:

Pathways for Action

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Energy & Climate Research Seminar
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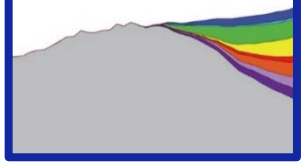
The Integrated Energy Network Builds upon Decades of EPRI Thought Leadership

PRISM: Portfolio for Clean Generation



Energy Efficiency

Flexible, Resilient, and Connected Power System

Connected Customers

Integrated Grid

Integrated Energy Network

Connecting Customers to Reliable, Affordable, and Cleaner Energy

Published in February, this document provides an introduction to our thinking.

We welcome your engagement as we refine the concept and action plans!

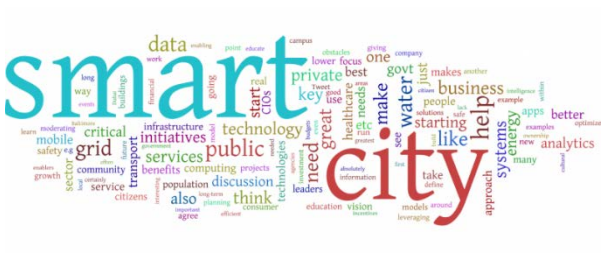
Available at:

http://ien.epri.com

Integrated Energy Network

Energy and Natural Resource Systems are Integrated to Provide Reliable, Safe, Affordable, Cleaner Energy and Expanded Customer Choice

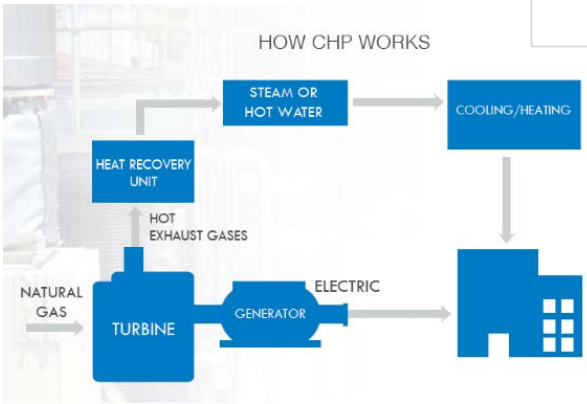
Governments and Companies are Taking Steps Towards the IEN… But are Only Scratching the Surface



Integrated Thinking

NEW YORK STATE OF OPPORTUNITY. | Reforming the Energy Vision

Exploring Policy and Regulation



Local Systems Integration

Investing in Infrastructure

Testing Advanced Equipment

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The IEN:
Consumer, Producer and Delivery Perspectives

Integrated Energy Network

Connecting Customers to Reliable, Safe, Affordable and Cleaner Energy

Cross-cutting Issues

Integrated Energy Network – Key Insights

- The IEN requires rethinking energy
- Efficiency and electrification play essential roles in the future energy system
- Integrated (Electric) Grid enables the IEN
- Innovation is needed in technology, policy, regulation, business models and market designs to effect an efficient transformation
- Global collaboration in innovation necessary

Together…Shaping the Future of Electricity

Producing Cleaner Energy

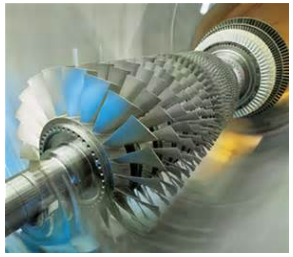
Renewables

Large-Scale Storage

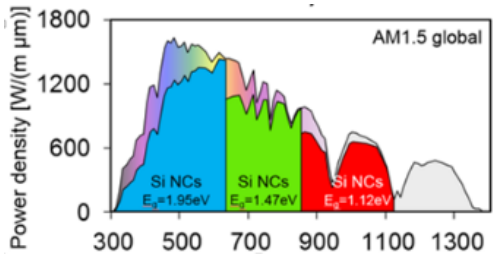
Distributed Energy Resources

Ultra Supercritical

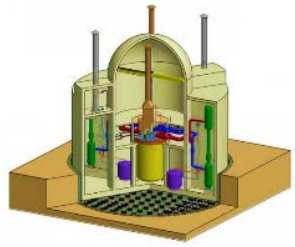
Natural Gas



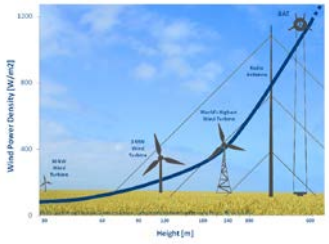
Advanced Power Cycles
(e.g., Supercritical CO_2 Cycle)



Gen III Photovoltaic (PV)



Generation IV Nuclear
(co-production – electricity, hydrogen steam)



High Altitude/Power Wind

Source: Carbon Capture Image – htcco2systems.com; Gen IV Image – KAERI

Technology, policy, and regulatory innovation in the next decade can expand the options for the future

Using Cleaner Energy – Through Efficiency and Electrification

Electric Vehicles

Advanced Energy Communities

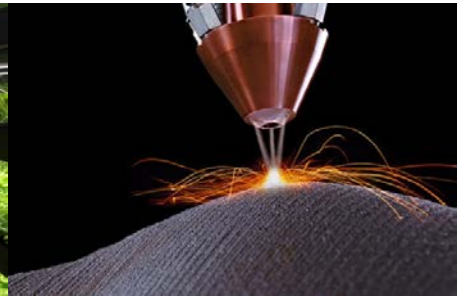
Industrial Processes

Hydrogen and Biofuels

Heat Pumps

Rail Electrification

Teleheating



Indoor Agriculture and Advanced Manufacturing

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Integrating Energy Resources

Transmission

Courtesy of AEP

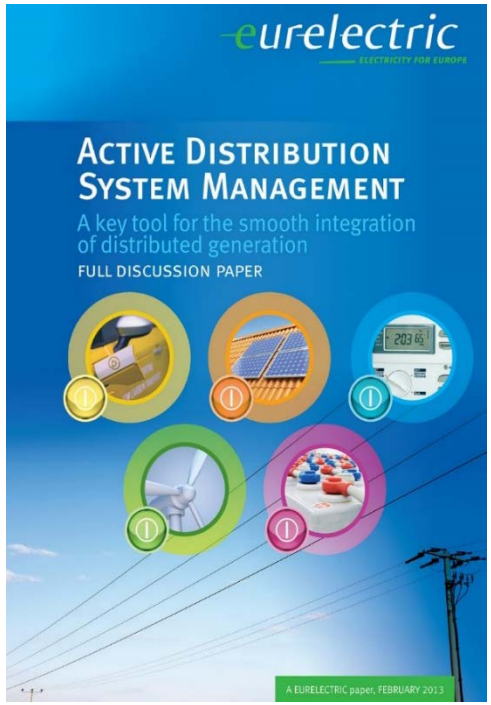
Flexible Resources

Courtesy of GE

Courtesy of Chevron

Courtesy of Ecobee

Smart Distribution



Courtesy of Eurelectric