



Sprint Nextel
Suite 700
900 7th Street, NW
Washington, DC 20001
Office: (703) 592-5112
Fax: (202) 585-1940

Michael B. Fingerhut
Senior Counsel
Government Affairs
michael.b.fingerhut@sprint.com

October 24, 2011

ELECTRONIC FILING

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: EX PARTE PRESENTATION: In the Matter of Reliability and Continuity of Communications Networks, Including Broadband Technologies, PS Docket No. 11-60; and Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, EB Docket No. 06-119

Dear Ms. Dortch:

On Friday October 21, 2011, and at the request of staff from the FCC's Public Safety and Homeland Security Bureau (PSHSB), Sprint briefed Jeff Goldthorp and Jane Kelly of the PSHSB on Sprint's back-up power plans for Sprint's technologically advanced network, *i.e.*, Network Vision, that Sprint will be deploying over the next few years. Representing Sprint at the meeting were Richard Engelman, Richard Zinno and the undersigned in person as well as John Holmes and Kevin Kenny who participated by phone via conference bridge.

Sprint provided the staff with the attached presentation and pointed out that, consistent with its ranking as the third greenest company on Newsweek's list of the 500 greenest companies in America, Sprint intends to use "green" back-up power solutions that will have significantly less impact on the environment, as compared to diesel generators, and will also reduce Sprint's carbon footprint. Toward that end, Sprint explained that it was considering installing either hydrogen fuel cell technology or methanol hydrogen reformer fuel cell technology at its critical coverage sites in high risk markets where feasible. Sprint has already deployed hydrogen fuel cells pursuant to a grant from the Department of Energy at some of these sites.

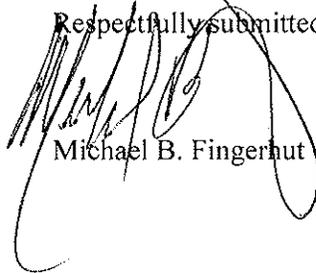
Sprint also emphasized that because the use of these technologies is not yet scalable and thus will be extremely costly to install, Sprint will need to deploy such green technology over time. Any FCC requirement that wireless carriers are to provide a minimum number of hours of backup power at cell sites by a certain date could have the deleterious effect of forcing Sprint, a company that is committed to providing telecommunications in ways that are environmentally friendly, to deploy less expensive and less environmentally-friendly diesel technology.

For these reasons, Sprint urged the FCC to exert its influence to encourage continued government backing of green telecommunications technology through the extension of the Section 1603 US Treasury Grant Program in lieu of tax credits. Such program is set to expire at year's end. In addition, Sprint urged the Commission to allow carriers to devise service level focused risk-based solutions.

Marlene H. Dortch
October 24, 2011
Page 2

Please contact me if you would like more information.

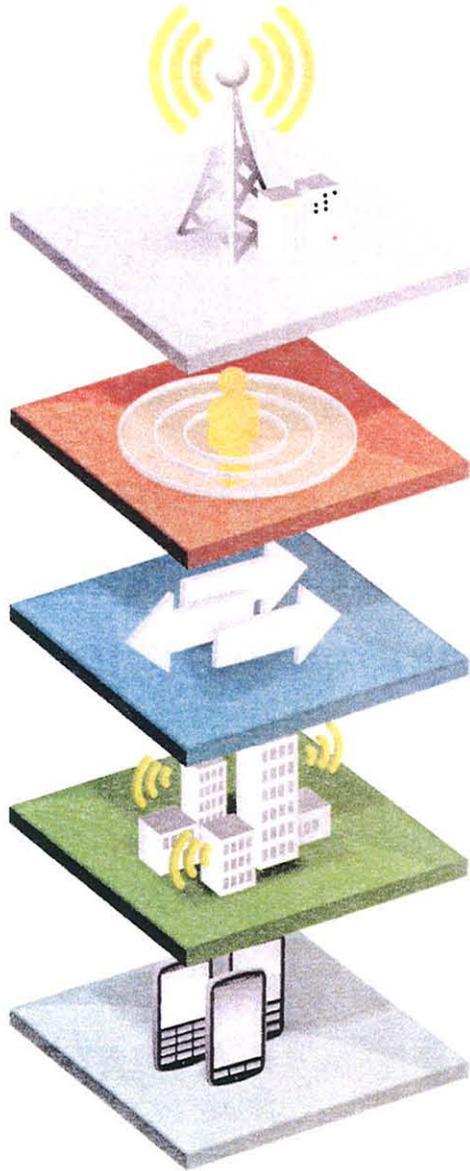
Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael B. Fingerhut", is written over the typed name. The signature is stylized and somewhat illegible due to overlapping lines.

Michael B. Fingerhut

Enclosure

cc: Jeff Goldthorp, FCC
Jane Kelly, FCC



Sprint Hydrogen Fuel Cell Power Backup

October 21, 2011

Topics

- *Sprint Network Vision*
- *Overview of the green solutions employed in today's network*
- *Future technology considerations*
- *Strategies & Challenges*
- *Requested Government Action*



Sprint Network Vision

Multimode equipment allows every tower to support any and all frequencies

Today

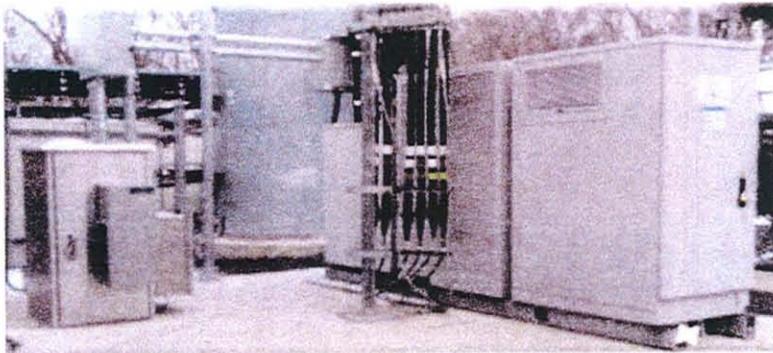
Three networks, with distinct technology and spectrum bands

Tomorrow

Multiple technologies operate on the Sprint network

- 4G - LTE
- 3G
- Sprint Direct Connect

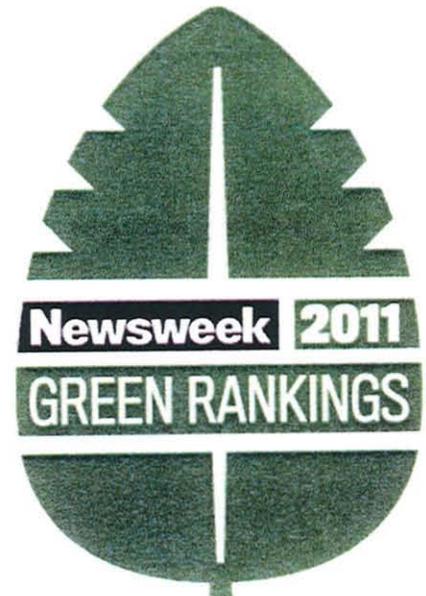
Unified networks, spectrum bands support any protocol/purpose



The Challenge – Existing Cell Site Power Supplies



- *Sprint has thousands of cell sites in the US. Like other carriers the sites are in a variety of locations and configurations*
- *Diesel, extended batteries, and propane are all non-green, non-environmentally friendly solutions*
- *Traditional back up power supplies are becoming less desirable*
 - *State environmental regulations become stricter*
 - *Sprint seeks to do business in a more sustainable way.*
- *Sprint aims to seek out viable sustainable back-up power solutions to meet cell site back up power needs*
- *Network Vision deployment reduces Sprint's carbon footprint, and brings the power needs of individual cell sites into more manageable levels that can be served by lower power green solutions*



Summary: Back-Up Power Green Technologies Explored

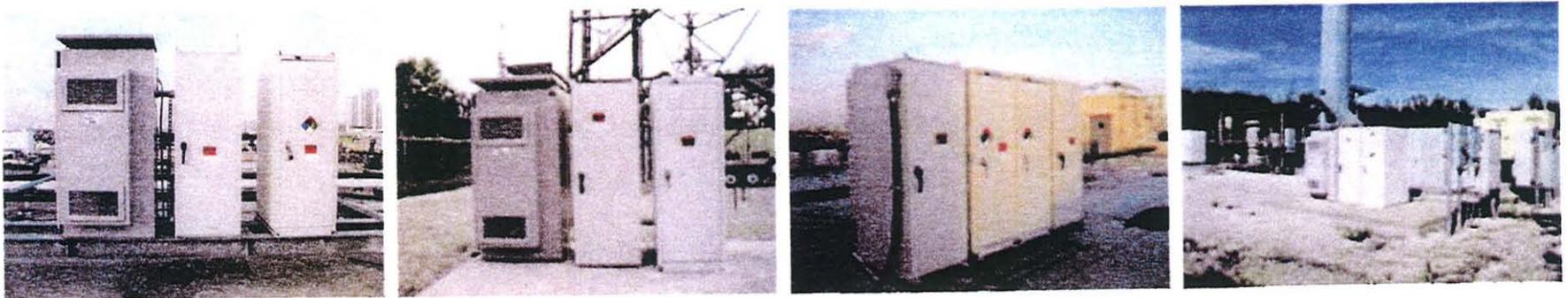


- **Hydrogen Fuel Cells (HFC)**
 - Deployed/Deploying 260 units.
 - More details in Department of Energy Project Discussion
- **Methanol Hydrogen Reformer Fuel Cell (i.e. 'Reformer')**
 - Holds high promise. Clean, reliable, low maintenance. Undeveloped refueling infrastructure.
- Natural gas Microturbine**
 - Still utilizes natural gas. Not very green.
 - As a back-up power source not very reliable. Still relies on natural gas supply which could be scarce or cut off by cities by design in disasters
- Solar – Not viable**
 - Would still require substantial battery storage. Batteries can just as readily be charged up by commercial power. Panels suspect to damage by the disaster events of greatest concern.
- Ammonia Reformer – Not viable**
 - Safety concerns, caustic. A new hazardous material requiring extensive and rigorous workforce training. Theft and vandalism concerns. Product is an input to illegal drug manufacturing operations.
 - Liability concerns.
- Water hydrolysis technology: Hydrogen from water – Not Viable Yet**
 - Early stages of development
 - Requires stable supply of water
 - Need to store the generated hydrogen prior to outage. Can not keep up real time with demand at this stage. Limited advantage over HFCs

Hydrogen Fuel Cell DOE Project

“Demonstrate how the hydrogen Proton Exchange Membrane (PEM) fuel cell and medium pressure storage solution will eliminate non-technical barriers of siting and permitting by enabling 72 hours of stored hydrogen and overcoming the associated challenges of ‘last mile’ refueling”

*The DOE project under **contract number DE-EE0000486** awarded to Sprint in March 2010 funded the deployment of 260 Hydrogen Fuel Cell (HFC) solutions at cell sites*

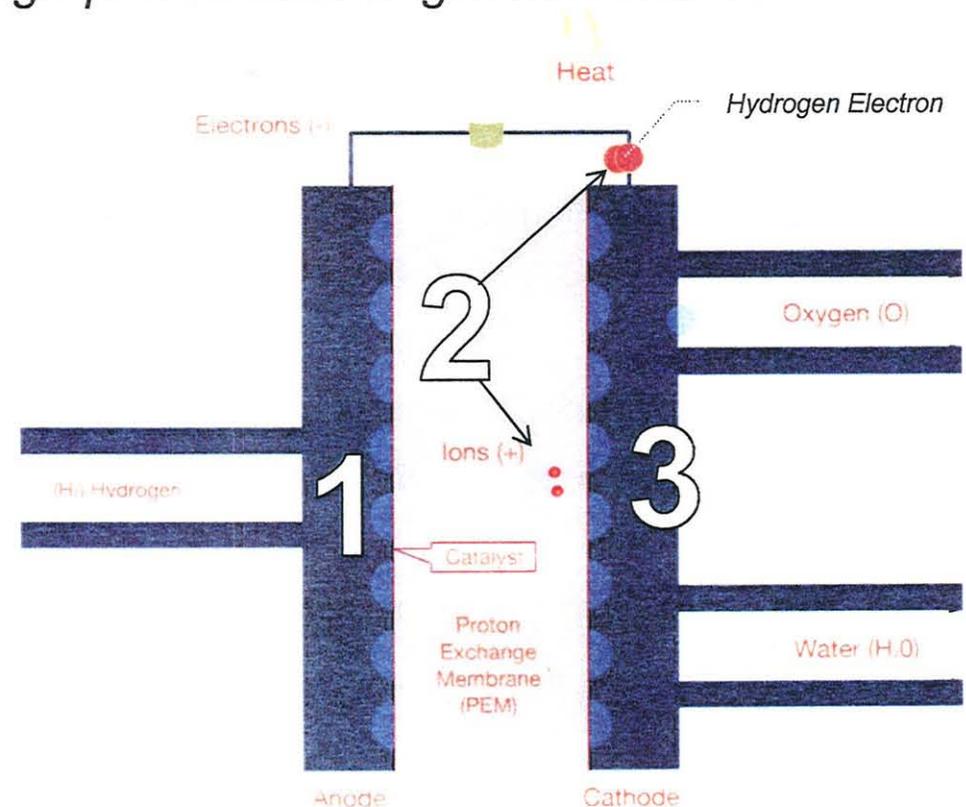


Hydrogen Fuel Cell

Future technology considerations

Uses the chemical energy of hydrogen to cleanly and efficiently produce electricity

1. Gaseous Hydrogen is forced through proton exchange membrane.
2. The hydrogen **proton** travels through the membrane, while the **electron** enters an electrical circuit, creating a DC electrical current.
3. On the other side of the membrane, the proton and electron are recombined and mixed with oxygen from room air, forming pure water

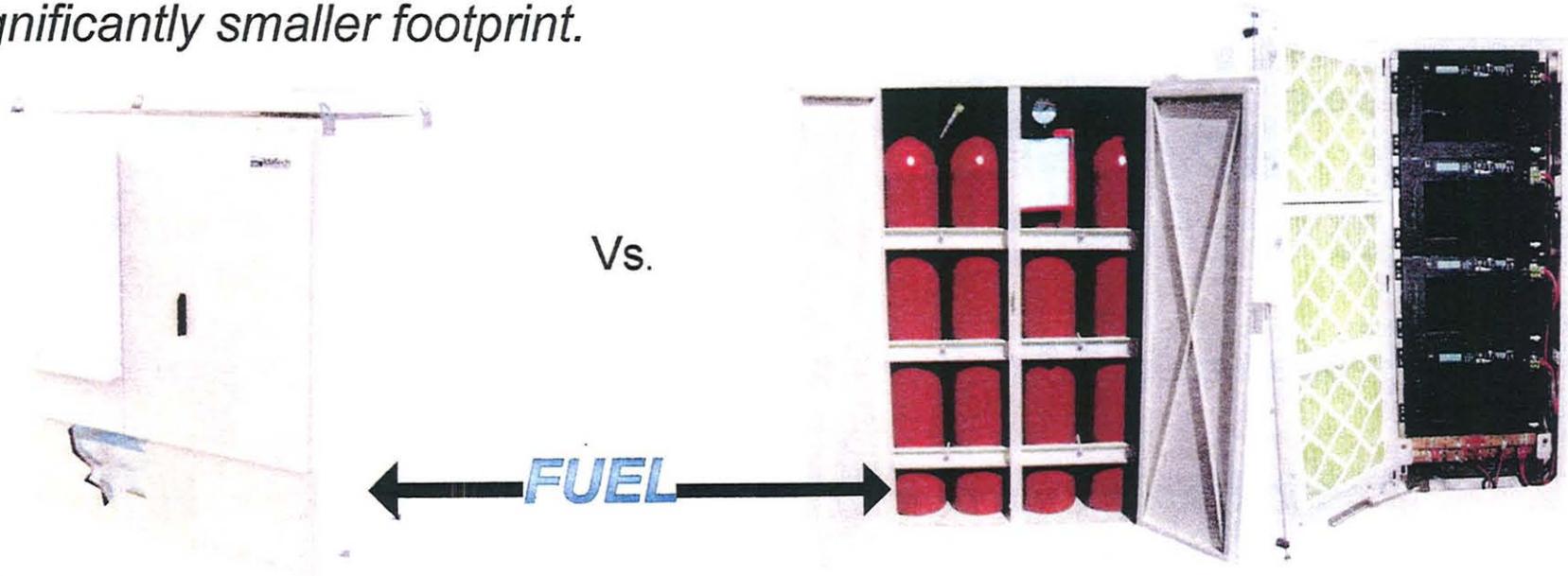


REF: ReliOn

Methanol Hydrogen Reformer – Fuel Cell

Future technology considerations

- The ME Reformer eliminates the need for stored hydrogen.
- The system generates its own hydrogen on demand through its fuel reformer technology.
- Liquid fuel (methanol-water), which has five times more energy for the same volume than compressed hydrogen while occupying a significantly smaller footprint.



REF: IdaTech
ElectraGen ME™ solution – 5 KW

Refueling

Methanol-Water



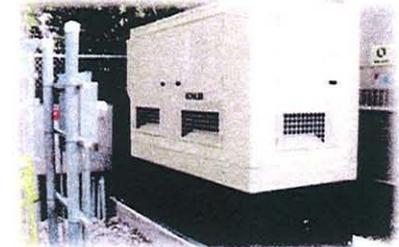
- Easy Refueling
- Biodegradable Fuel
- Low Flammability Fuel
 - Long Run Time
 - Low Emissions

Hydrogen



- Difficult Refueling
- Heavy H2 Cylinders
- Frequent Site Visits
 - Short Run Time
 - Zero Emissions

Diesel

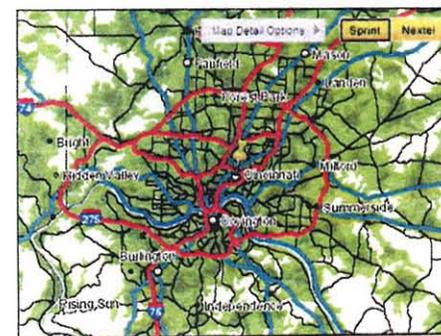
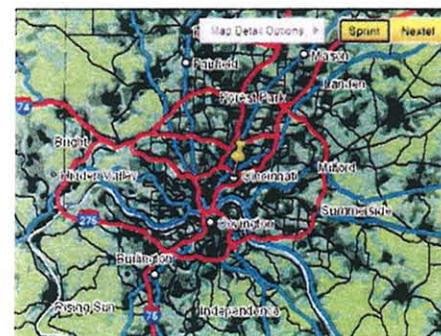


- Easy Refueling
- Non-Biodegradable Fuel
- High Flammability Fuel
 - Long Run Time
 - High Emissions

NOTE: There have been recent improvements in Hydrogen Refueling

Strategies and Challenges

- *Target additional backup to protect coverage footprint*
- *Use historical data and relative market risk to target higher risk markets*
- *Challenges*
 - ✓ *Many sites are not capable of receiving extended power backup*
 - ✓ *Costs:*
 - *Capex - green technologies are expensive*
 - *Opex - Lease increases, refueling and maint.*
 - ✓ *Availability of fuel and strategic fuel vendors*
 - ✓ *Limited ME Reformer OEMs*
 - ✓ *OEM reluctance to invest more in larger power systems (i.e. 10KW) until there is greater demand*



Requested Government Action

- *Extension of the Section 1603 US Treasury Grant in lieu of tax credit for 2 more years will encourage investment in green back up systems (Part of the American Recovery and Reinvestment Act of 2009)*
- *A program or solicitation similar to the DOE grant that Sprint has worked on for Hydrogen Fuel Cells market transformation for Methanol Reformers would be valuable.*

