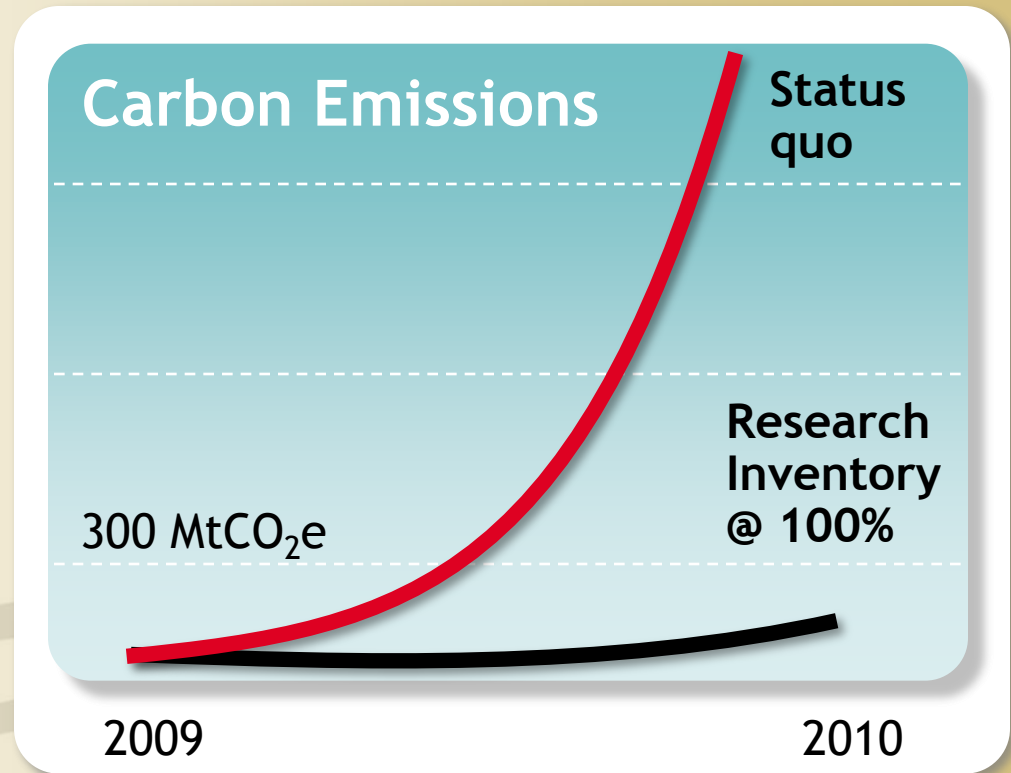




**Green Touch™ Initiative:**  
*A Five Year Quest to  
Achieve Sustainable  
Networking*

## Where We Are

Global Users  
Information  
Video  
Wireless  
HD ... 3D ...



## Where We Are

### Global Users Information

with



### Carbon Emissions

Status  
quo

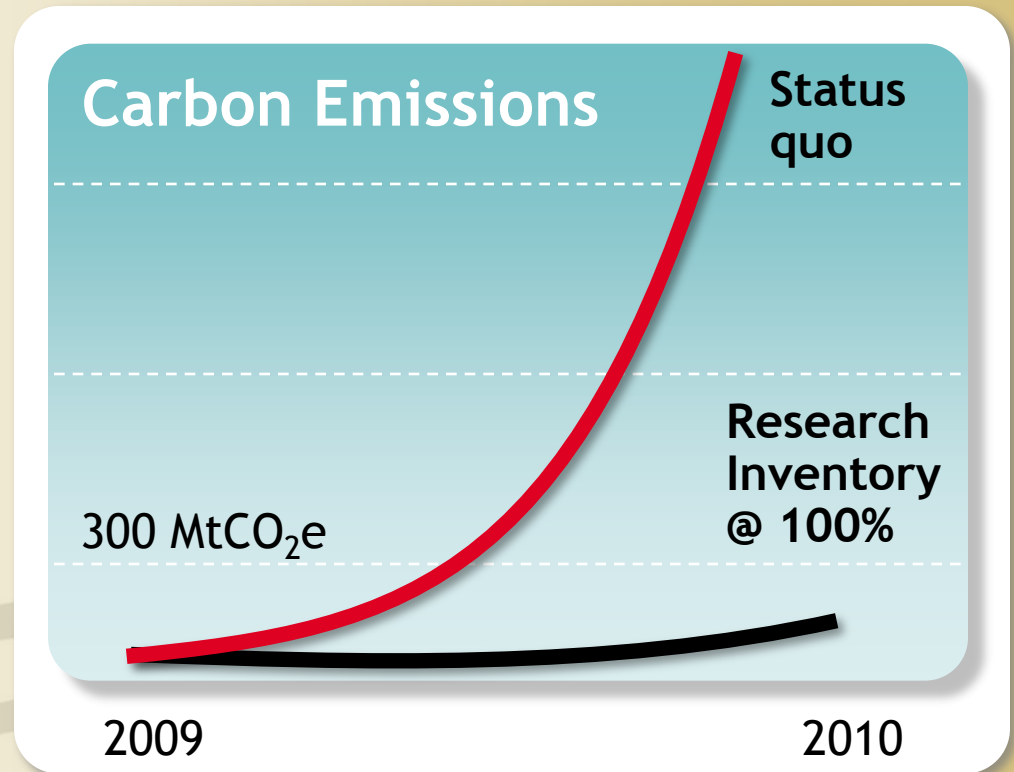
Research  
Inventory  
@ 100%

mtCO<sub>2</sub>e

2010

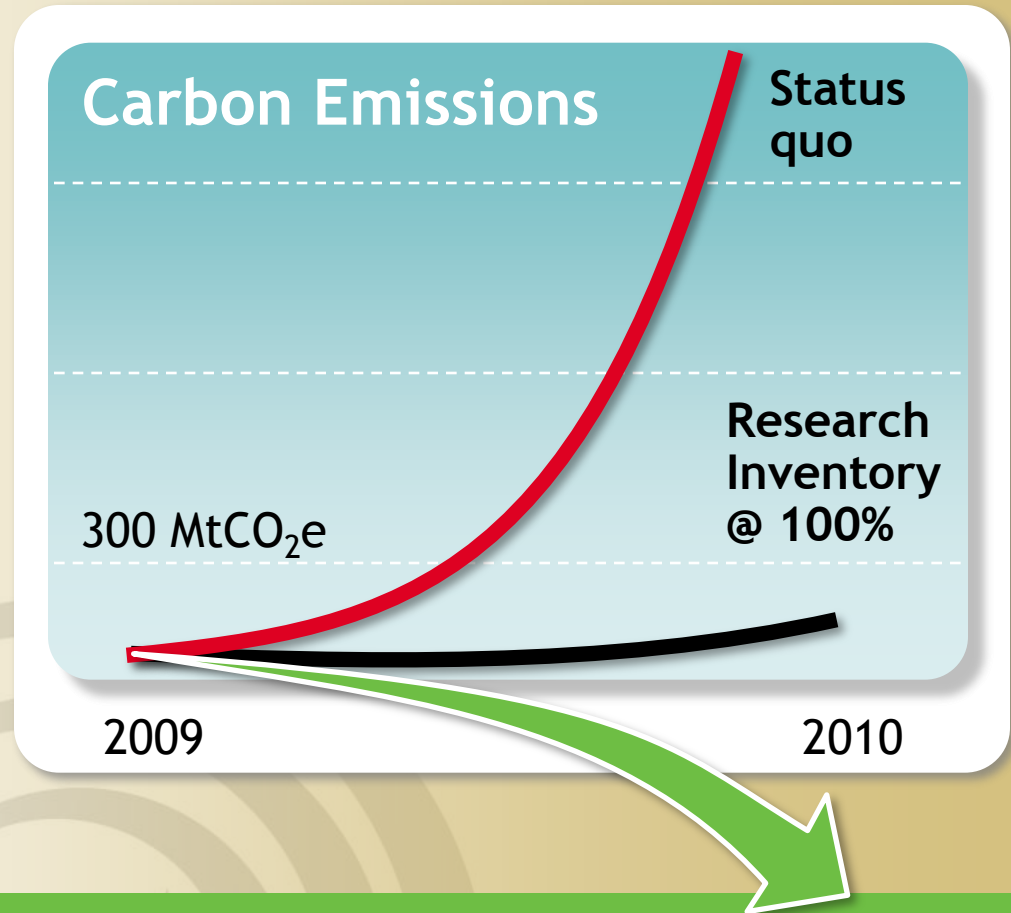
## Where We Are

Global Users  
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## Where We Are

Global Users  
Information  
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# How Far Can We Go?

Bennet and Landauer

quantum uncertainty

thermal noise

optical

Keys



Claude Shannon

Wireless

## How Far Can We Go?

“communications networks could be  
**10,000 times more energy-efficient**  
than they are today”

(Bell Labs research study)



Claude Shannon

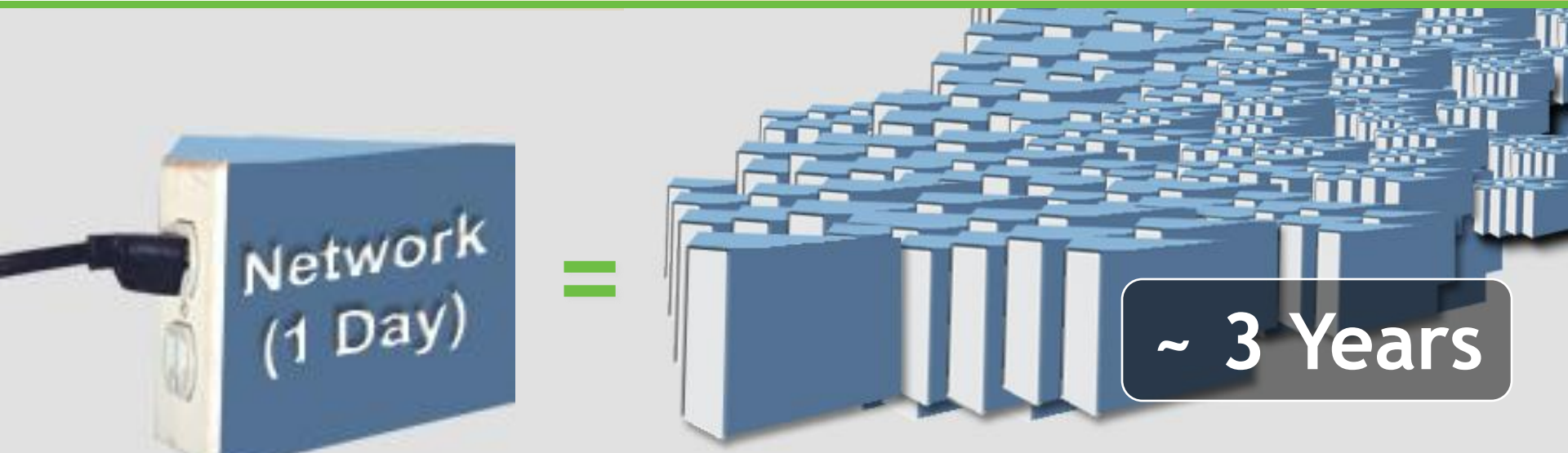
Wireless

## The Challenge

Demonstrate technologies in 5 years  
that will lead to a **1,000-fold  
reduction** in energy consumption

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A forest the size of the U.K.

## Thinking Beyond Today



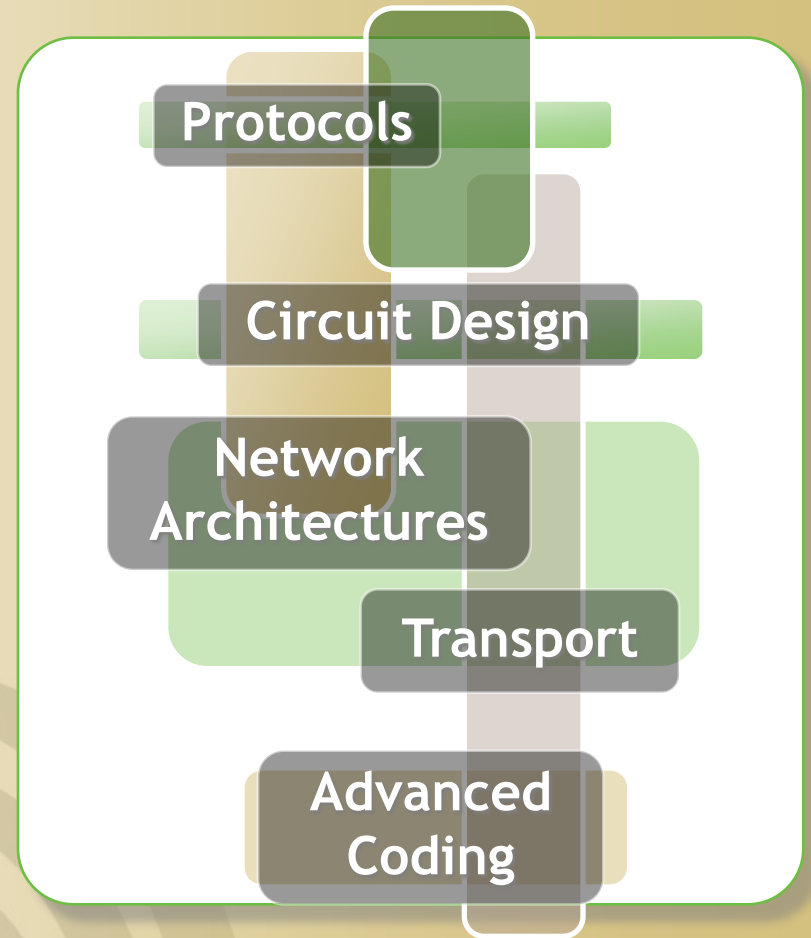
- 3,000,000+ Base Stations
- 700,000,000+ Internet Nodes
- 1,000,000,000 km of Fiber

Today's Network Optimized for Performance

# Thinking Differently About Networks

## Brilliant Minds ... Leading Experts

- Optimized for energy
- Holistic Approach
- Multi-Discipline
- Equivalent Performance



Demonstrate technologies in 5 years  
that lead to a **1,000-fold** energy reduction

- Draw on expertise across the industry and around the **world**
- **Open** invitation to the entire industry
- Founding members are **experts** from world's top institutions and operators



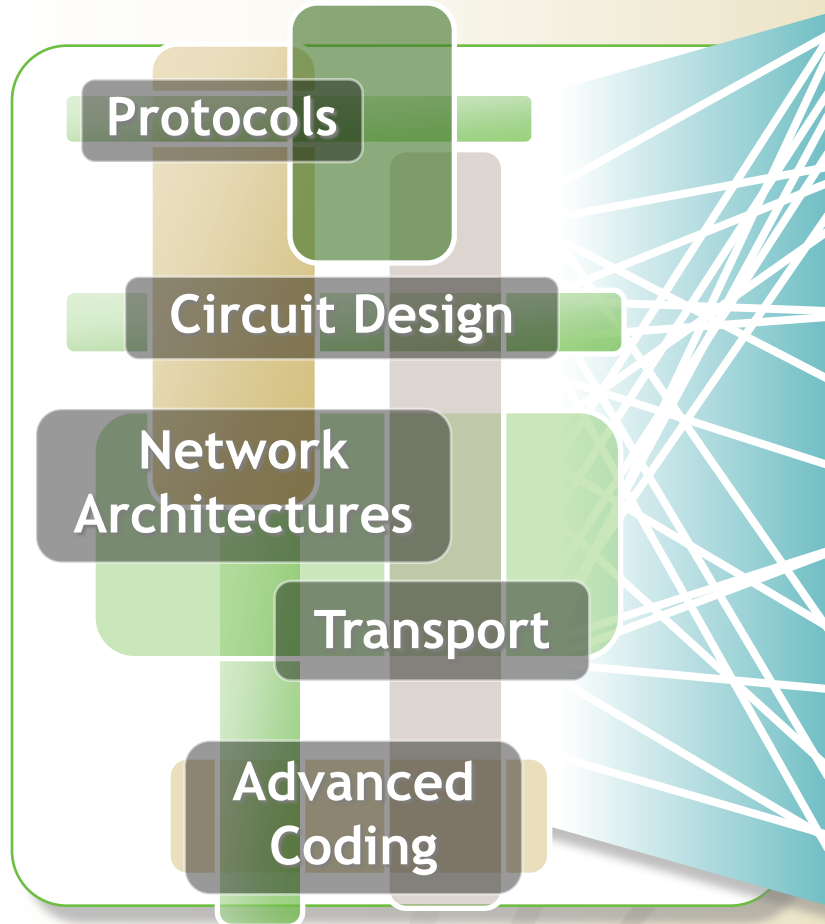
# Green Touch Consortium Profile and Activities



- Common reference architecture, common objective
- Five year research funded by industry and government
- Yearly milestones
  
- Committed to open collaboration
- Shared intellectual property
- Members from across the entire ICT community
  
- Interactive project management to review milestones
- Steering board composed of founding members
- Technical working groups in major areas.



# 15 Founding Members



- Massachusetts Institute of Technology's (MIT) Research Laboratory for Electronics (RLE)
- Stanford University's Wireless Systems Lab (WSL)
- University of Melbourne's Institute for a Broadband-Enabled Society (IBES)
- Telefonica
- Swisscom
- China Mobile
- AT&T
- Portugal Telecom
- imec
- CEA-LETI Applied Research Institute for Microelectronics
- The French National Institute for Research in Computer Science and Control (INRIA)
- Foundation Communications Mobile
- Freescale Semiconductor
- Samsung Advanced Institute of Technology
- Bell Labs

## The Focus

- We're bringing together top scientists from around the world
- From industry, academia, and government
- With the right expertise
- Clean slate, bottom-up optimized around energy

# GreenTouch™



FRENCH NATIONAL  
INSTITUTE FOR RESEARCH  
IN COMPUTER SCIENCE  
AND CONTROL



## Bell Labs

# Government Endorsements



“...brings together the brightest minds in an unconstrained, creative environment...”

**Dr. Steven Chu,**  
Secretary of  
Energy,  
*USA*



“... opening the way to generating major technological breakthroughs.”

**Christian Estrosi,**  
Minister for  
Industry,  
*France*



“...the model for the sort of radical initiatives that we need to address the huge challenge of global warming.”

**Jong-Soo Yoon,**  
Director General,  
Ministry of  
Environment,  
*South Korea*



“...calls our attention to the importance of the network and collaboration between different institutions.”

**Paulo Campos,**  
Secretary of State for  
Public Works and  
Communications,  
*Portugal*



“shows how business can play its part in delivering the low carbon society we are working to achieve. . .”

**Ed Miliband,**  
Secretary of State for Energy  
and Climate Change  
*UK*



## Just To Recap ...

- Eco-sustainability is CRUCIAL for ICT
- The industry just doesn't have a current solution
- Bell Labs' research confirms that there is a tremendous opportunity
- We're bringing together the right people from the right institutions from across the world to realize it



# Green Touch™ Initiative



# GreenTouch

[www.greentouch.org](http://www.greentouch.org)