




THE GREENTOUCH VISION: Transforming ICT Networks for a Sustainable Future

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Chairman of the Board, GreenTouch

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..... Alcatel-Lucent 

FUNDAMENTAL LIMITS ON ENERGY EFFICIENCY

“Communication networks could be
10,000 times
more energy efficient
than they are today.”

– Bell Labs research study



A NEW INNOVATION MODEL FOR SUSTAINABILITY

Bell Labs-initiated GreenTouch™
 FOCUS ON ENERGY EFFICIENCY

HOLISTIC AND AMBITIOUS:

GOAL OF 1000X

60
MEMBERS

25
RESEARCH PROJECTS

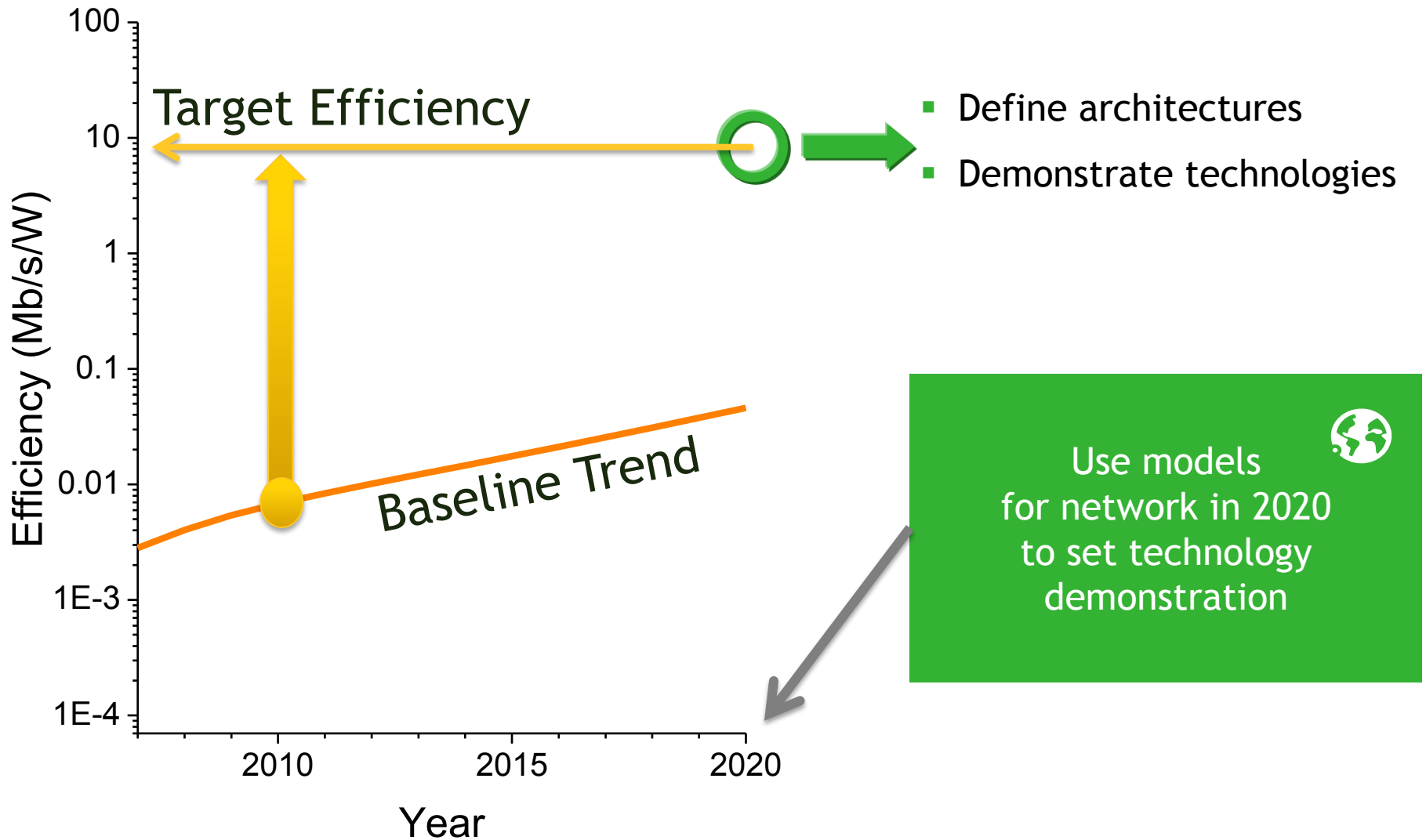
- 300+ LEADING SCIENTISTS from across the industry and academia around the world
- Recognized by the **WORLD ECONOMIC FORUM** as industry-led best practice toward sustainability
- Moving from fundamental research into the **PRE-COMPETITIVE AREA** through standardization
- Leading **GREEN ICT**: cooperation with other NGOs such as ITU-T, GeSI, Carbon Trust, ITRS

IT TAKES AN ECOSYSTEM

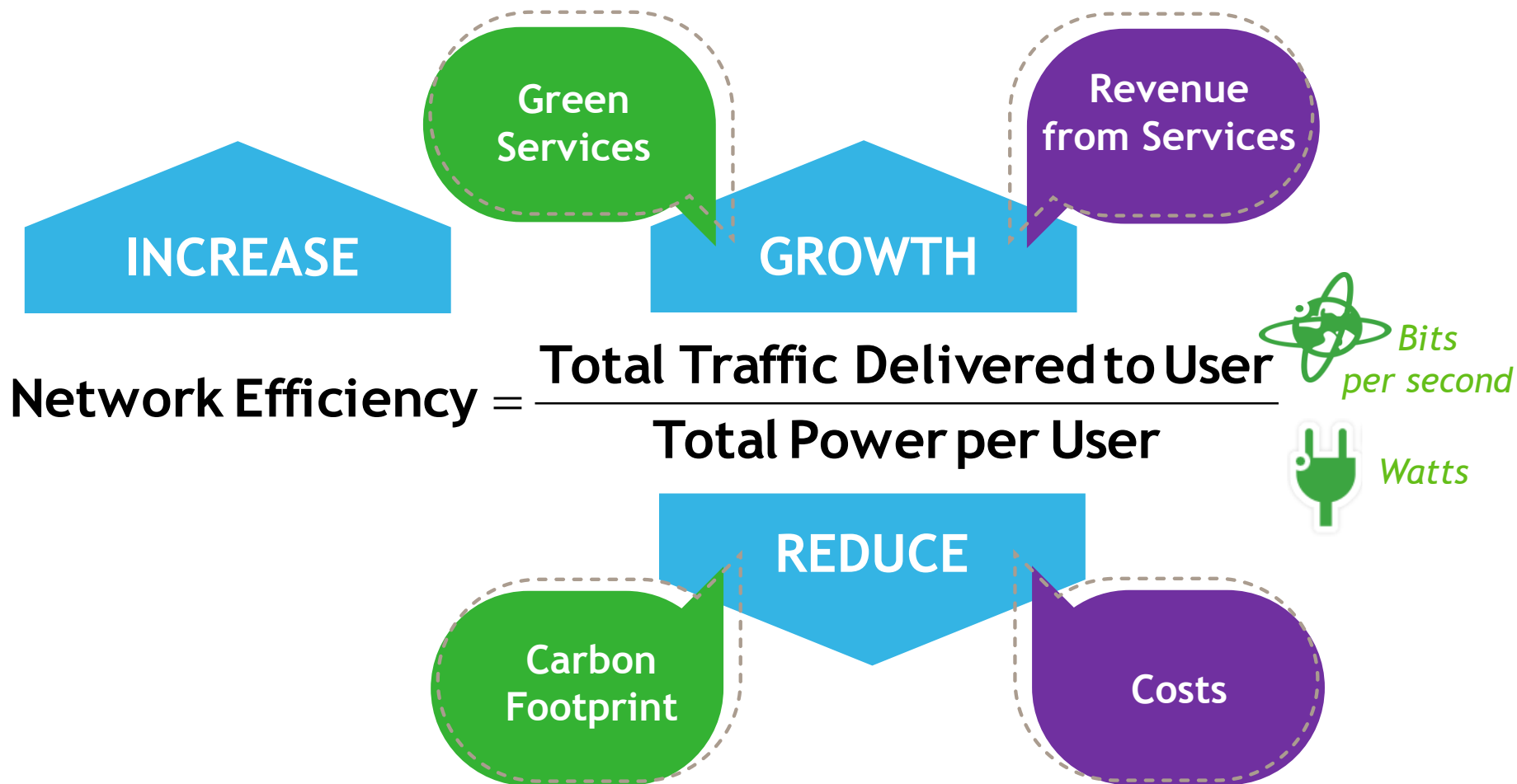


Deliver
 architecture, specifications & solutions
 + Demonstrate key technologies
 to increase network energy efficiency
 by a factor of 1000 compared to 2010

GREENTOUCH™ CONSORTIUM 5 YEAR GOAL



WHY NETWORK ENERGY EFFICIENCY?



Makes both environmental and economic sense



GREENTOUCH STATUS: WHERE ARE WE?

15+ RESEARCH PROGRAMS & 25 RESEARCH PROJECTS

- Wireless and mobile communications
- Wireline access
- Core networks and optical transmission
- Services, applications and trends

NEW APPROACHES BEING TAKEN

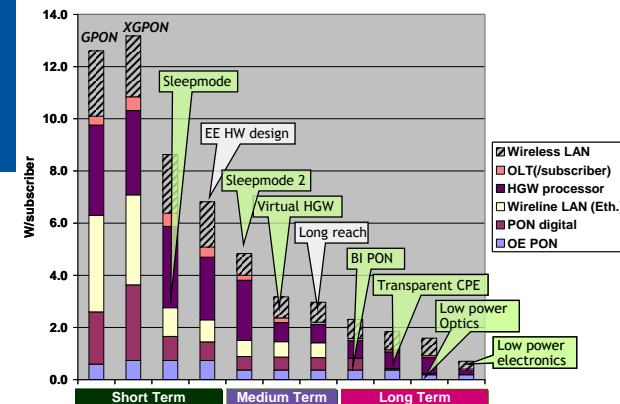
- Devices and low power electronics / photonics
- Architectures, algorithms and protocols
- “Power-follows-load” intelligent management
- Service and energy optimized networks

TWO MAJOR PUBLIC DEMONSTRATIONS

- Wireless
- Fiber-to-the-home



COMMON REFERENCE ARCHITECTURE & ROADMAP

- Establish and define common reference architecture and roadmap with strategic research directions



SOME RESEARCH PROJECTS

25+
PROJECTS

- 
- Beyond Cellular - Green Mobile Networks
 - Virtual Home Gateway
 - Optimal End-to-End Resource Allocation
 - Service Energy Aware Optical Networks
 - Green Transmission Technologies
 - Minimum Energy Access Architectures
 - Single-Chip Linecards
 - Large-Scale Antenna Systems
 - Highly-Adaptive Layer Mesh Networks
 - Massive MIMO
- 

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CONCLUSIONS

ICT NETWORKS ARE GROWING RAPIDLY

- Scaling networks is becoming more difficult
- Bringing focus to energy efficiency



TRANSFORMING
ICT NETWORKS
FOR A
SUSTAINABLE
FUTURE

ICT AND RESEARCH COMMUNITIES ARE ORGANIZING TO ADDRESS CHALLENGES

- Dramatic, holistic change, but over long term evolution
- Cooperative organizations such as GreenTouch guiding (re)evolution

SEVERAL PROMISING RESEARCH DIRECTIONS AND INITIAL RESULTS HAVE BEEN OBTAINED

MORE WORK REMAINS!

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AT
THE
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