Smart Green Schools and Colleges: The Next Decade (2026)
Smart Sustainable Green Communities and How to Finance them
Climate Change Impacts in Sectors
Sources: IPCC, ARS (2014)
Circular Economy and Transportation Mobility: Fuel-Cell Cars Are Moving Out of the Lab and Onto the Streets

Number of Fuel Cell Electric Vehicles on Roads, End of 2015 & Start of 2018

- USA: 2,300
- Europe: 1,200
- Japan: 4,200
- S Korea: 700
- California: 400
- 2015: 220 tonnes hydrogen per year
- 2018: 1,100 tonnes hydrogen per year

Source: Bloomberg New Energy Finance

Future of Energy Summit 2015
Agile Energy Communities

The shape of grids to come?

Conventional electrical grid
Centralised power stations generate electricity and distribute it to homes, factories and offices.

Energy internet
Many small generating facilities, including those based on alternative energy sources such as wind and solar power, are orchestrated using real-time monitoring and control systems.

Offices or hospitals generate their own power and sell the excess back to the grid. Hydrogen-powered cars can act as generators when not in use. Energy-storage technologies smooth out fluctuations in supply from wind and solar power.

Distributing power generation in this way reduces transmission losses, operating costs and the environmental impact of overhead power lines.

Sources: The Economist; ABB
The Impact of Climate Change on Physical, Mental, and Community Health

- **Medical and Physical Health**
  - Changes in fitness and activity level
  - Heat-related illness
  - Allergies
  - Increased exposure to waterborne and vectorborne illness

- **Mental Health**
  - Stress, anxiety, depression, grief, sense of loss
  - Strains on social relationships
  - Substance abuse
  - Post-traumatic stress disorder

- **Community Health**
  - Increased interpersonal aggression
  - Increased violence and crime
  - Increased social instability
  - Decreased community cohesion
The Green Industrial Revolution

Vision: Controlling and Mitigating Climate Change
Economic Change through Innovation and Technology:

1. Have an Energy Environmental Plan with built in financing mechanisms
2. Efficient and Conservative energy use along with Renewable Energy through On-site power and Central Grid Generation forming Agile Systems
3. Demand Side Management Performance and Power Contracts that are long-term and economical
4. Green and Blue Tech for renewable energy systems such as solar, wind, ocean and wave power integrated with chemical, electronic and engineering technologies
5. Smart Green Grid – central systems and on-site power
6. National, regional, state and local plans integrated green technologies and provide financial support
8. Global economic alliances based on social capital including IP and Finance etc.
China’s new 5-year plan is out, and it doesn’t sacrifice the environment for the economy:
President XI calls it, “Green Development”

By Clayton Aldern on 18 Mar 2016

Installation of solar photovoltaic panels on the roofs of the Hongqiao Passenger Rail Terminal in Shanghai, China.
Photo by Jiri Rezac/The Climate Group

In 2012, China became the world’s top investor in renewable energy. Photo by Philip McMaster/Flickr
With 13th Five-Year Plan, China Sets Stronger 2020 Carbon Intensity Target

Cumulative carbon intensity reductions are calculated based on the methodology articulated in WRI's working paper “Assessing Implementation of China's Climate Policies in the 12th 5-Year Period.”

*2015 is calculated based on China's announcement of achieving around 20% carbon intensity reduction during the 12th Five-Year period.

**The percentage reduction of carbon intensity from 2005 levels by 2020 under the 13th Five-Year Plan is calculated from the plan's target to reduce carbon intensity 18% from 2015 levels by 2020.

**COPENHAGEN PLEDGE:**
40-45% reduction from 2005 levels by 2020

**13TH FYP GOAL:**
48% reduction from 2005 levels by 2020**
More Californians work in “Advanced Energy” jobs than in Farming or Hollywood

By Heather Smith on 13 Apr 2016 (grist)
G-20 Summary Results
Hangzhou, China, September 3-5, 2016
B-20 Task Forces and G-20 Summit Report

http://g20executivetalkseries.com

#38 / World Chambers Congress: Fostering Opportunities, Cultivating Innovation
#42 / Combatting Global Climate Change By Dr Werner Brandt
#44 / Moving the Global Climate and Sustainability Agenda Forward Through G20 By Peder Holk Nielsen
#54 / Unlocking SME Potential for Inclusive Economic Growth By Dr. Tunc Uyanik
#56 / The New Dimensions for the Great Silk Road By Dr Oleg Preksin
#70 / Russia and China Join Forces to Develop Green Energy By Alexey Lossan
#72 / Physical and Digital Connection: Accelerating Inclusive Growth and Prosperity in Asia By Victor K Fung
#76 / Ushering in a New Era of Global Progress and Prosperity through Trade By Andrew N. Liveris
#78 / More Doing, Less Talking By Kimball Chen
#82 / E-Learning, E-Commerce and E-Health: How Internet Connectivity Is Transforming Lives Across the Globe By Fumbi Chima
G-20 Summary Results
Hangzhou, China, September 3-5, 2016
Premier Mr. Xi Jinping Speech to B-20 Task Forces (September 2, 2016)

Hangzhou: Silk Road to Yangtze River “Cross the river by feeling the stones”

“Actions speak more than words”
“Move industries and manufacturing up to a higher level”
“Green and Sustainable Development”
“Supply-side reform”
“People” are the foundation of our countries
“Enterprise” with Equity and Fairness – New Starting point: “Win-win” outcome
   “Strategic Choices” “Fully involved in global economy”
   “Foreign investments” --- “fair, open” and “Sound investments”

“Innovation is the Key” -- “First Time that G-20 takes action on innovation”

1) “Integrate reform” with all countries
2) “Result otherwise is ‘loss = loss’ “
3) “World needs synergy”
4) “Interconnection”
5) “Inclusive World Economy”
6) Renewable Energy

Results of G-20 Summit
Transform from crisis change to long-term solutions
Long-term are critical
Business is key to building communities
Finance / growth of infrastructures.
Employment
Corruption
Germany: Four Decades of Sustainable Policymaking: Freiburg, GR
Community Steps to Take

Drive Less

Land-Use Mix

Connectivity

Transit, bike, ped

Education and Inform about options

Information

Education
UC Berkeley Goes Solar

UC BERKELEY IS NOW GENERATING 1MW OF POWER FROM THE SUN
(March 28, 2016)
Green Energy is Affordable
Applications from small to large facilities
East LA College Campus

Central Plant and Solar/PV 1 MW

Location/Utility Routing
第一辆混合动力车

1903年 罗纳-保时捷汽车

1997年12月：销售开始
“及时赶上21世纪”
Hanergy Solar Cars
(Beijing, 2 July 2016)
Solar Hydrogen Station Technology

Unique Honda Designed
**Electrolyzer** (PEM type)

Honda Produced
**Solar Cells** (CIS type)

Renewable **Electricity**

Water

**Hydrogen**
Smart Green Cities: Circular economy
distributed on-site power

A Modern Power System: Smarter, More Distributed
Stellar Energy Solutions

THE CALIFORNIA HYDROGEN HIGHWAY
Near Future Sustainable Mobility Infrastructure

- Wind-generated electricity
- Hydro- power electricity
- Hydrogen refueling station
- Solar panels
- Road-to-vehicle communication
- Intervehicular communication
- Automated Platoon Driving
- E-Charge Lane
- Electricity charge lane
What Works to Get Kids Active

Schools and communities can help kids get the 60 minutes of physical activity they need each day.

- Renovate parks +12 min
- Add after-school programs +10 min
- Support walking/cycling to school +16 min
- Require daily P.E. +23 min
- Provide in-class activity breaks +19 min


Active Living Research is a national program of the Robert Wood Johnson Foundation
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