

SUSTAINABLE COOLING INITIATIVE

TechEmerge

Accelerating adoption of innovation
where it is needed most



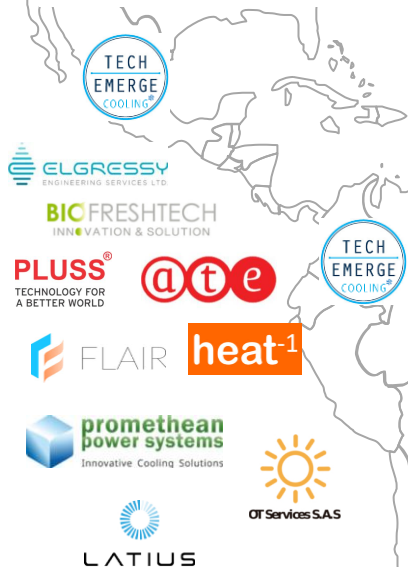
Creating Markets, Creating Opportunities

INNOVATION CASE STUDY: TECH EMERGE PROGRAM

COOLING CITIES LATIN AMERICA

22 pilots / 18 co's / 14 tech

Climate-smart solutions in retail, pharma, agriculture, education, logistics, and space cooling



HOSPITALITY, S. ASIA

12 pilots / 2 co's / 9 tech

Climate smart cooling solutions for hotels



RETAIL COLD CHAINS SOUTH ASIA

8 pilots / 3 co's / 5 tech

Improve transport, storage, control, and monitoring of perishable products



TEMP CONTROLLED LOGISTICS AFRICA

21 pilots / 15+ co's / 18 tech

Improve transport, storage, control, and monitoring of perishable products and pharmaceuticals

CAPTURING WASTE COLD OF LNG

Study

Feasibility of capturing the waste cold energy of LNG receiving terminals

INNOVATIVE TECHNOLOGIES: SPACE COOLING

COOLING TOWERS



- Low approach (< 2°C) cooling towers
- Alternative cooling
- Initial test runs prove, 20% - 70% energy savings
15% - 35% GHG Avoidance



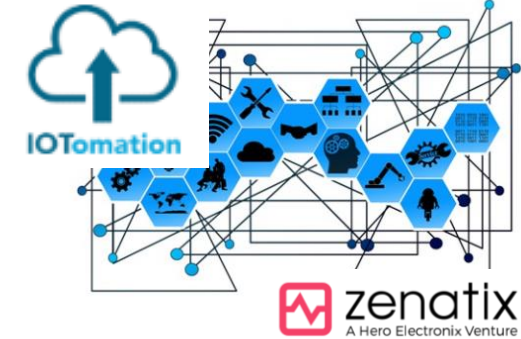
OT Services S.A.S



PURIX

IoT / AI

- Advanced BMS system with 40+ nodes being monitored / controlled
- Initial test runs prove,
 - 10% - 20% energy savings
 - >15% GHG Avoidance



AIR HANDLING & (IAQ)



- Air Purification System with heat exchanger
- Initial test runs prove,
 - ~5% energy savings
 - ~90% reduction of PM2.5
 - ~50% reduction of PM10



DRI
Innovative Air Solutions

COOLING WATER TREATMENT

- Chemical free water treatment
- Test runs prove,
 - 5% - 15% energy savings
 - 2x – 3x recycle of water
 - Elimination of chemicals
 - Discharge water reused for alternate purpose (irrigation)





SPACE COOLING CASE STUDY: IHCL, INDIA

IHCL

- IHCL is South Asia's largest hospitality company with 263 hotels across 12 countries
- Cooling is **50%** of IHCL's energy needs
- TechEmerge pilot with providers of 1) cooling solutions and 2) monitoring of results
- IHCL tested **7 technologies in 10 pilots**
- **Savings of 16-18%** relative to baseline, based on limited installation pilot
- Estimated savings: **\$92,500 per year per hotel**

IoT-Enabled Systems



Cooling Towers



Indoor Air Quality



CT Water Treatment



Creating Markets, Creating Opportunities

Further resource: [TechEmerge case study](#)

INNOVATIVE TECHNOLOGIES: COLD CHAINS

STORAGE

ecozen



- 100% Solar +PCM
- Extension of shelf life by 7 days
- Zero grid energy

GreenCHILL™



- Biomass powered refrigeration unit
- 90% electricity consumption reduction

ChillTech



- Waste heat absorption
- 40% – 50% cost reduction

FIRST / LAST MILE

TESSOL
Viable. Reliable. Sustainable

PLUSS®
TECHNOLOGY FOR
A BETTER WORLD

BIOFRESHTECH
INNOVATION & SOLUTION



- PCM (passive/active)
- 12 – 16 hours transit time without need for energy



Eja-iCe 



- Solar PV + Battery
- 6 - 12 hours transit time without need for energy

LONG HAUL

atc International



- Solar/Eutectic Hybrid
- 70+ hours transit time without need for energy

RETAIL



Koolbox

- PCM (active)
- Solar PV and/or Grid Hybrid
- 12 – 70 hours autonomy



BIOFRESHTECH
INNOVATION & SOLUTION

- PCM (active)
- Grid Hybrid
- 16 – 48 hours autonomy

Further resource: [Sustainable Cooling Innovation Summit](#)

FOOD PRODUCTION CASE STUDY: NATURAL OFFSET FARMING



- IFC TechEmerge client NOF provides pre- and post-harvest cooling services for crops
- NOF tackles **1st mile food losses** by utilizing CO₂
- NOF system provides **root-zone cooling** to increase “chilling hours” required for productive yields
- Cooling produce in the **first hours after harvest** extends shelf life and can **increase incomes 20-30%**

72 hours post harvest



Treated with NOF

Not Treated

Further resource: [NOF website](#)

TECHEMERGE RESULTS SO FAR...

40+

Tech Companies

45+

Adopting Companies

50+

Technologies

90+

Pilots / Field Tests

\$11+ million

Financial & Tech Support

15% - 80%

energy/cost savings

Achievable w. new technology

2+ million tons GHG

Unearthed potential avoidance

\$65+ million

Financing raised by innovators

\$2+ million

commercial contracts under negotiation

30+ business relations

formed between participants

40+ tech

progressing in TRL

One patent filed

Further resource: [NOF website](#)

\$100 million

District Cooling

*investment platform in India
(Tabreed: \$75m + IFC: \$25m)*

THANK YOU!

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More info:

www.techemerge.org

*IFC's Sustainable Cooling Initiative is supported by
the UK Government*



Keeping it chill

How to meet cooling demand,
while cutting emissions

