Morocco Pilot For
All-Africa Public & Private Bankers AC Buyers Clubs
Seeking Affordable Super-Efficient Low-GWP ACs
Side Event Agenda

- **Welcome**: Ms. Shamila Nair-Bedouelle, Head of OzonAction, Paris
- **Remarks**: Dr. Ajay Mathur, Executive Director, The Energy and Resources Institute (TERI)
- Morocco Pilots **Overview**: Stephen O. Andersen, IGSD
- African **Bank Leadership**: Dr. Amal Benaissa, BMCE Bank of Africa
- **Government Leadership**: Mr. Radouane Yessouf, Agence Marocaine de l’Efficacité Énergétique AMEE
- **Panel Discussion**: Presenters plus Mr. Marco Gonzalez (Ozone Secretariat, retired), Dr. Suely M. Carvalho (United Nations Development Programme -- UNDP, retired), and Mr. Rajendra Shende (TERRE)
- **Questions & Answers**
The Power & Importance of Bankers to Climate

- Bankers are the masters of rate-of-return and pay-back and know that energy savings can accumulate into fortunes.
- Bankers are concerned and involved in their communities are are trusted advisors in investment, including energy efficiency.
- Bankers have access to money for investment and set an example for others wanting to do their part for sustainable prosperity.
- Local banks are often owned by national or international organizations, allowing success in one location to be quickly replicated.
What is a Bankers AC Buyers Club?

- A Bankers AC Buyers Club is an organization that fosters lowering the price and increasing the quality of selected products by buying in bulk and streamlining distribution and installation.

- The Buyers Club can be an informal private organization without the complications of government.

- A Bankers AC Buyers Club can make the purchase, take delivery, and distribute the product to subscribers --- or can negotiate a lower price for members who buy from dealers that deliver and install the Acs.

- Agreements for service can maintain energy efficiency and savings.
Banks in many countries use small air-conditioners for automated teller machine (ATM) rooms and bank lobby and office areas.

Most bank ACs are old, inefficient, expensive to operate and increasingly unreliable; newer ACs can also be inefficient.

Replacement super-efficient ACs rapidly pay back cost in hot and humid climates, particularly if purchased through a Buyers Club.

Banks can finance AC replacement and track and communicate the savings in the banking network and to customers.

Banks buying ACs made affordable through Buyers Clubs can also be made available to customers as part of the procurement agreement.
Casablanca: 1 March 2018 Meeting Participants!

- Agence Marocaine de l’Éfficacité Énergétique (AMEE)
- Moroccan Ministry of Industry and National Ozone Unit
- Association Marocaine Professionnel du Froid
- Banks including Attijari Wafabank, Banque Populaire, BMCE, CIH bank, Central Bank of Morocco and Nigeria Central Bank
- Nigeria Ozone Unit
- AOB Business Consultant Group
- The Energy and Resources Institute of India (TERI)
- ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)
- Daikin Middle East
- IGSD
- Various Local & Regional Press
Moroccan Agency for Energy Efficiency (AMEE) and IGSD sign Memorandum of Understanding (MOU) to determine the highest efficiency room air conditioner using lower-GWP refrigerants that is cost-effective in Morocco.

- The ownership savings of higher energy efficiency
- The community savings of cleaner air
- The national savings of avoided power plants/fuel with savings spent locally
- The global savings of the combined carbon-equivalent direct refrigerant greenhouse gas (GHG) and indirect fossil fuel and biomass GHG emissions

- Calculated for local climate conditions and heat islands, electricity price, and time-of-day carbon intensity of electricity.
Co-Chairs
- Mr. Saïd MOULINE, CEO AMEE, and President, Commission Economie Verte, Confederation Generale de Entreprises du Maroc
- Dr. Stephen O. ANDERSEN, Director of Research IGSD

Expert Members
- Dr. Suely CARVALHO, Senior Expert Member, Montreal Protocol Technology and Economics Assessment Panel (TEAP)
- Mr. Abderrahim CHAKOUR, Chef/ Division des Industries Chimiques et Para-chimiques, Ministere de l'Industrie du Morocco
- Mohamed EL HAOUARI, Director of Energy Efficiency and Renewable Energy, AMEE
- Dr. Yunho HWANG, Center of Environmental Energy Engineering, University of Maryland,
- Radouan YESSOUF, Chef de Service Bâtiment, AMEE
Next Steps: Coordinated Morocco Pilots

- Four independent but coordinated pilot projects in Morocco with the advice and counsel of African NOUs and banks
  1) Pilot select life-cycle carbon footprint analytical metric
  2) Pilot business plan to upgrade ACs at BMCE Bank of Africa
  3) Liaise likely suppliers of super-efficient ACs to Morocco
  4) Undertake private buyers club procurement for Morocco Banks

- African NOUs and banks “learn by doing” and take lessons forward.

- African Buyers Clubs harmonize procurement specifications for lowest cost-effective life-cycle carbon footprint, taking into account MLF and other financial incentives and Paris Agreement obligations
Inventory existing ACs for capacity, refrigerant, & nameplate efficiency.

Craft investment criteria for accelerated replacement based on financial and environmental rate of return.

Determine the sensitivity of results to differences in interest rates and the global value of lifecycle avoided direct refrigerant, indirect fossil, and biomass electricity greenhouse gas (GHG) emissions.

Publish results and welcome peer review and local wisdom.
Mitsubishi, Fujitsu, General, Hitachi, Panasonic, Toshiba, Sharp and others have already sold 45 million R-32 ACs worldwide.

Japan has completed the transition from HFC-410A to R-32.

Many A5 Parties plan to leapfrog from HCFC-22 to R-32.

Daikin is introducing super-efficient R-32 ACs designed for African high ambient temperatures.

Daikin has already joined the Morocco Buyers Club Project and is ready to participate in testing of their African super-efficient high-ambient model as a replacement of older HCFC-22 ACs.
Cultivate African Super-Efficient R-290 AC Supply

- R-290 ACs can achieve the lowest carbon footprint at cooling capacities where the safe minimum charge is adequate.
- So far, R-290 market penetration is far less than R-32 ACs, but recent approval for sale in Germany is considered a breakthrough.
- IGSD has invited Haier, Midea and TCL to participate in the Morocco Buyers Club project, but agreement is not yet reached.
Kigali Success With Help From Our Friends

- Locally-appropriate carbon footprint metrics guide choice.
- Participation of global suppliers of super-efficient lower-GWP ACs.
- Respect national choice of affordable GWP and energy efficiency.
- Back up the project with stronger minimum energy efficiency standards (MEESs) made economic by lower Buyers Club price.
The Morocco Banker’s AC Buyers Club Welcomes Participation of Any and All Suppliers Willing to Compete in Africa for Super-Efficiency Using Lower-GWP Refrigerants
AC demand in African is driven by low rate of AC market penetration; long, hot, and humid air conditioning seasons; and increasing population, wealth and electrification.

- Expensive electricity generated from fuel imported from foreign countries makes energy efficiency more economic than elsewhere.

- The Kigali Amendment to the Montreal Protocol will phase down hydrofluorocarbon (HFC) refrigerants and increase energy efficiency.

- The challenge for Africa is to gain access to the best next-generation technology while avoiding dumping of obsolete technology.

- A Bankers Buyers Club in Morocco Pilot can jump start investment in super-efficiency with climate and clean air benefits.
Banks are considering replacement of old ACs if reputable manufacturers will sell, install, and service super-efficient ACs using lower-GWP refrigerants, providing lower ownership cost and higher climate benefits.

Daikin will offer super-efficient ACs with a lower-GWP refrigerant designed for high ambient temperatures if banks agree to coordinate purchase and installation to achieve economy of scale and efficient use of crews; IGSD is recruiting Chinese manufacturers.

The Moroccan Agency for Energy Efficiency agreed to cooperate with IGSD to develop a simple metric for estimating environmental and financial net benefits from super-efficiency lower-GWP AC investment.
Three Selected Cities

- **Marrakech (Marrakesh)**
  - Population: 928,850
  - Coordinates: 31°37’N; 8°0’W

- **Tangier**
  - Population: 947,952
  - Coordinates: 35°46’N; 5°48’W

- **Casablanca**
  - Population: 3,359,818
  - Coordinates: 33°32’N; 7°35’W
## Temperature Bins

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