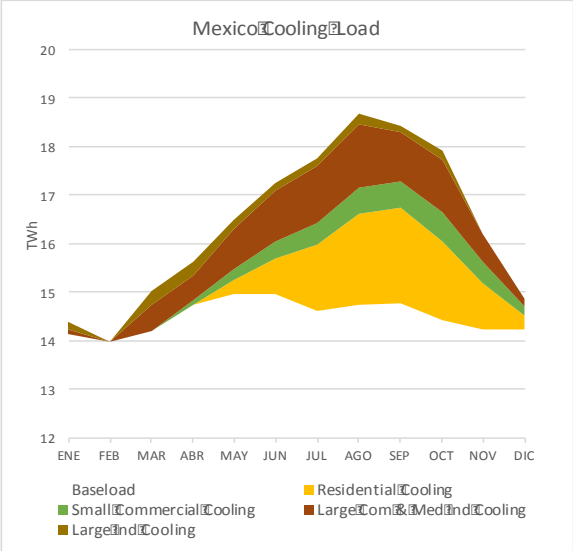
# *Mexico Cooling Initiative*

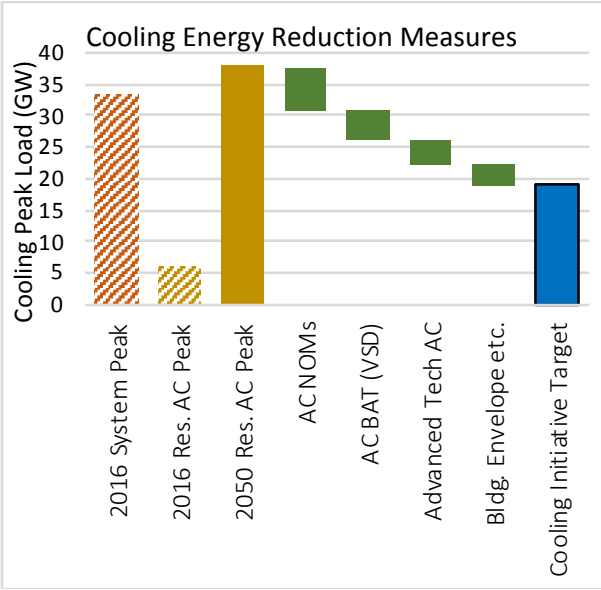
Berkeley Lab Mexico Energy Initiative (MEI) analysis finds that space cooling (air conditioning) in Mexico accounts for:




- Summer electricity use increase of 30%
- Nine percent of total electricity consumption
- Peak electricity demand of 7.5 GW
- Over $US 3 billion per year in energy bills and subsidies
- 10 million metric tons of $CO_2$
- Peak demand not well correlated to renewable resources

Most importantly, *cooling energy use is projected to double by 2030 and increase by a factor of 3.5 by 2050*, in line with global trends. Because of this, some activities are emerging around cooling worldwide and for Mexico in particular. In 2017 alone:

1. SENER announced a *Mexico-Roadmap for Building Energy Codes and Standards* in collaboration with the International Energy Agency and other partners.
2. The Kigali Cooling Efficiency Program (K-CEP) announced support for energy efficiency transition and HFC refrigerant phase-down in Mexico, in partnership with Berkeley Lab and UNDP.
3. Mexico's Sustainable Energy Fund (FSE) launched a 10 million dollar research initiative on Buildings Energy Efficiency in collaboration with the University of California.




Considering the importance of cooling to Mexico's energy system, as well as the tools to mitigate it (e.g. equipment efficiency and advanced construction), MEI partnered with USAID, SENER and CONUEE on a ***Summit on Space Cooling Research Needs and Opportunities in Mexico*** held in Mexico City in February 2018**.** In this unique event, participants from Mexican federal and state governments, researchers, industry and NGOs discussed opportunities, barriers and solutions to lowering cooling energy consumption through six main areas of practice (*equipment standards, voluntary adoption programs, technology R&D, building codes, cool surfaces and advanced building design and operation*). These discussions set the stage for a ***Mexico Cooling Initiative*** with goals to **cut cooling energy demand by half** versus Business-As-Usual and save **100 billion dollars** of electricity costs and subsidies by 2050.

Within the framework of the Mexico Cooling Initiative, Berkeley Lab proposes work in close coordination with SENER, CONUEE and other government agencies, as well as research institutions in Mexico and the U.S. and a wide array of private sector and civil society organizations in an integrated and coordinated strategy to meet these ambitious goals. The following main components are drawn from the Summit and ongoing dialog within the Mexico cooling community:

Components of Mexico Cooling Initiative

1. **Research and Development** – Basic research projects driving achievement of initiative goals through development of novel technologies scaling already-commercialized ones through a program of lab experiments, field testing and market and policy analysis, within a *National Center on Human Thermal Comfort,* as well as in collaboration with other institutions.
   - Demonstration/Pilot Projects - Coordinated field testing of advanced cooling and building technologies and technical standards integrated with industry initiatives and commercialization pipelining.
   - Cooling Insights Program – Design and collect datasets to better understand cooling loads, market dynamics and economic/subsidy/environmental impacts to create basis for program implementation, policy design and evaluation.
   - Regulatory Support – Bolster technical analysis supporting equipment efficiency standards (NOMs) including impacts, cost-effectiveness, comparison to international norms and expansion of coverage. Build robust technical foundation to update national building energy codes (NOM-008 and NOM-020).
2. **Program Implementation and Capacity Building**
   - Market Transformation – Comprehensive, integrated strategies to increase penetration of high-efficiency equipment and buildings, including innovative financing and incentive programs, bulk purchasing and voluntary industry agreements.
   - Refrigerant Transition Coordination of efficiency technologies and policies with HFC phase-down (through K-CEP and other programs) and other refrigeration technologies.
   - Enterprise Kick starting – Technical support and startup financing to incubate home-grown manufacturing and installation of efficient equipment and building materials.
   - Outreach, Education and Training - Information and education campaigns to inform end users, technicians, builders and local governments about the benefits of high-efficiency equipment and buildings, including on-site events, social media and mobile apps. Training programs for technicians, architects, engineers and builders.
   - Building Code Implementation - Development piloting and implementation of strategies to scale adoption and enforcement of building energy codes (NOM-008 and NOM-020) by sub-national governments.
   - Policy Evaluation – Elevation of cooling energy efficiency as a policy priority in Mexico's energy and climate strategy. Evaluation, monitoring and verification to ensure program integrity and quantify impacts.
3. **Organization and Coordination**
   - Initiative Coordination - Secretariat to manage, coordinate and seek synergy between projects and programs across multiple stakeholders and funding sources.
   - Community of Practice - Ongoing networking, outreach and convening platform including website, social media and newsletter / blogs to facilitate collaborative engagement throughout the initiative.