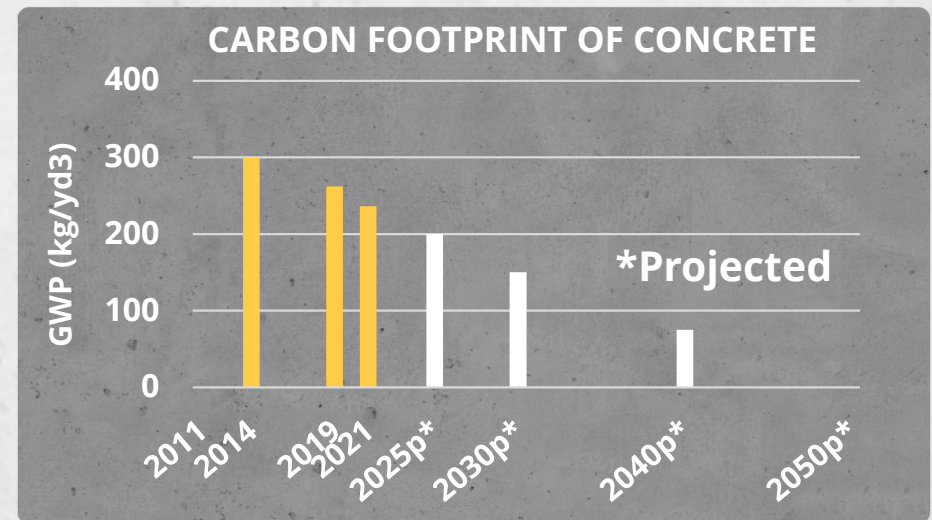
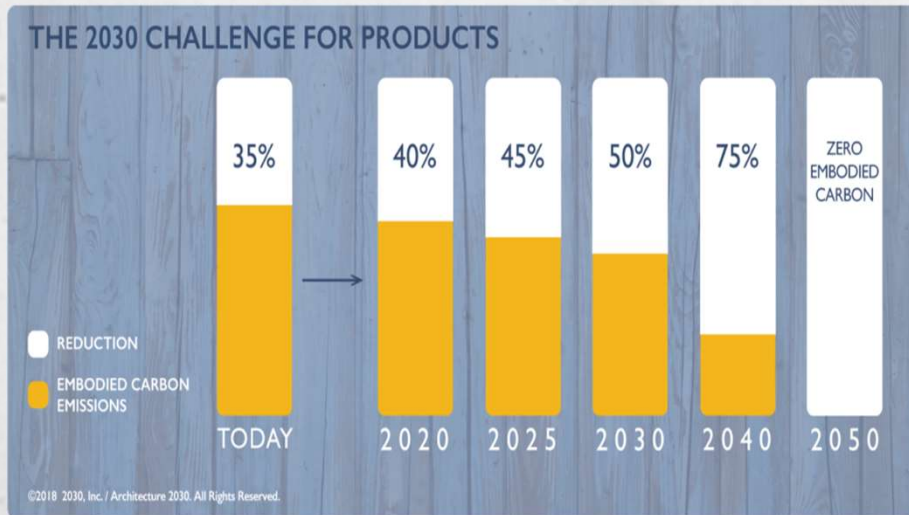


Challenges of Decarbonizing Cement for the Ready Mixed Concrete Industry

Lionel Lemay
National Ready Mixed Concrete Association

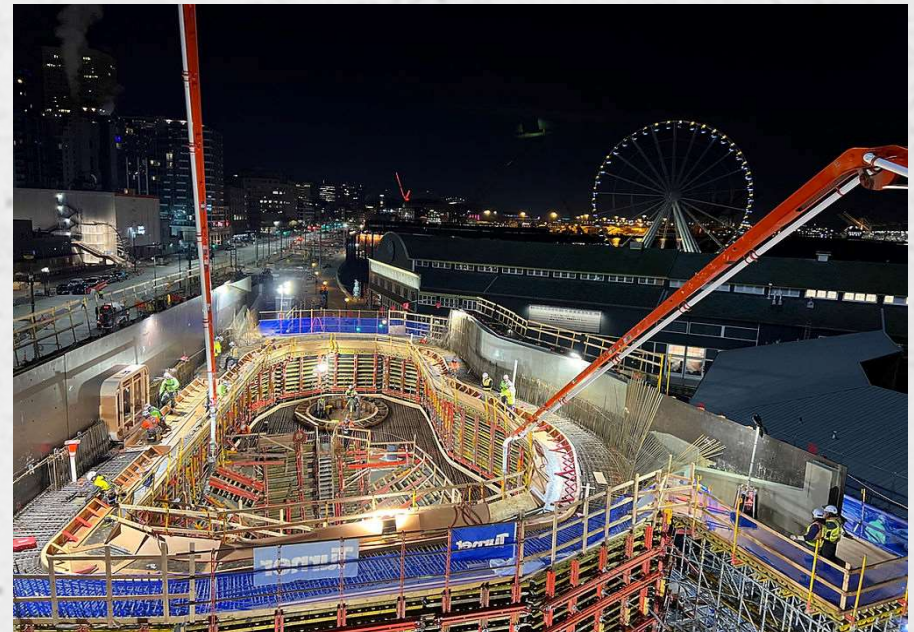


Commitment to Net-zero



Technological Challenges

- Expectation is concrete performs like it always has
- Hardened properties
 - Strength
 - Stiffness
 - Permeability
 - Shrinkage
 - Appearance
- Fluid properties
 - Setting time
 - Placeability
 - Finishability
 - Early age strength
- Measurement



Economic Challenges

- Volume of material needed
- Overcoming manufacturing model – concrete producer controls formulation
- Adding another material to the mix
 - Storage Silos are expensive
 - Permitting
 - NIMBY
- Regional availability vs national availability
- Consistent availability
- Construction schedules / cost may be impacted



Design and Construction Challenges

- Prescriptive specifications
 - Even if new cement meets an ASTM specification (C 595 or C 1157) it may not be permitted in project specifications
- Different strength and durability characteristics not understood
- Additional contractor requirements
 - Placeability
 - Finishability
 - Early strength gain
 - Does not accept new product



www.nrmca.org/sustainability

www.concreteinnovations.com

www.buildwithstrength.com

Lionel Lemay
National Ready Mixed Concrete Association
llemay@nrmca.org
847-922-7995

