



**CROWN**

DYNAMIC TINT – WE MAKE YOUR GLASS SMARTER™

February 2022

NASDAQ: CRKN



# Safe Harbor Statement

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This presentation and other written or oral statements made from time to time by representatives of Crown Electrokinetics may contain “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements reflect the current view about future events. Statements that are not historical in nature, and which may be identified by the use of words like “expects,” “assumes,” “projects,” “anticipates,” “estimates,” “we believe,” “could be,” “future” or the negative of these terms and other words of similar meaning, are forward-looking statements. Forward-looking statements are based on management’s current expectations and assumptions regarding our business, the economy and other future conditions and are subject to inherent risks, uncertainties and changes of circumstances that are difficult to predict and may cause actual results to differ materially from those contemplated or expressed. Should one or more of these risks or uncertainties materialize, or should the underlying assumptions prove incorrect, actual results may differ significantly from those anticipated, believed, estimated, expected, intended or planned. Important factors that could cause actual results to differ materially from those in the forward looking statements include: a continued decline in general economic conditions nationally and internationally; decreased demand for our products and services; market acceptance of our products; the ability to protect our intellectual property rights; impact of any litigation or infringement actions brought against us; competition from other providers and products; risks in product development; inability to raise capital to fund continuing operations; changes in government regulation; and, the ability to complete customer transactions and capital raising transactions.

Factors or events that could cause our actual results to differ may emerge from time to time, and it is not possible for us to predict all of them. We cannot guarantee future results, levels of activity, performance or achievements. Except as required by applicable law, including the securities law of the United States, we do not intend to update any of the forward-looking statement to conform these statements to actual results.

All forecasts are provided by management in this presentation and are based on information available to us at this time and management expects that internal projections and expectations may change over time. In addition, the forecasts are entirely on management’s best estimate of our future financial performance given our current contracts, current backlog of opportunities and conversations with new and existing customers about our products. This overview is delivered solely as reference material with respect to our company. This document shall not constitute an offer to sell or the solicitation of an offer to buy securities in our company in any jurisdiction. The information herein is based on data obtained from sources believed to be reliable.



# Company Overview

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Crown's Purpose – To provide an affordable smart glass solution to the existing 5.6 million commercial buildings in the United States that can lower energy use and reduce carbon emissions.

Crown is launching its first product called Smart Window Insert powered by DynamicTint™ – An affordable, solar-powered (no hardwiring to building) smart glass insert that can be easily installed to the interior side of windows in commercial office buildings.

Announced first two customers MetroSpaces in October and Hudson Pacific (NYSE:HPP) in December/January.

Crown's Smart Window Insert is based on our proprietary and patent-protected electrokinetic technology – a pigment-based thin film initially developed by HP.



# Building Owner's Problem – Crown's Solution

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## Problem – glass windows are inefficient

Windows in commercial buildings are inefficient insulators which causes HVAC systems to use excessive amounts of energy leading to increased energy spending and unnecessary carbon emissions.

## Solution – Crown's Smart Window Insert

Crown's Smart Window Insert absorbs sunlight, keeping the office cooler longer, thereby reducing the amount of HVAC usage, reducing the amount of electricity used and reducing the amount of carbon released into our environment.



# What is a Smart Window Insert?

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Crown's Smart Window Insert easily installs into your existing window frame and uses Crown's electrokinetic thin film technology that transitions from clear to dark in seconds.

Crown's Smart Window Inserts transform your single-pane windows into energy efficient double-pane windows. Using our DynamicTint™ technology, you will be able to block out unwanted heat and light, therefore reducing your reliance on the HVAC to cool down the building.

What are the benefits:

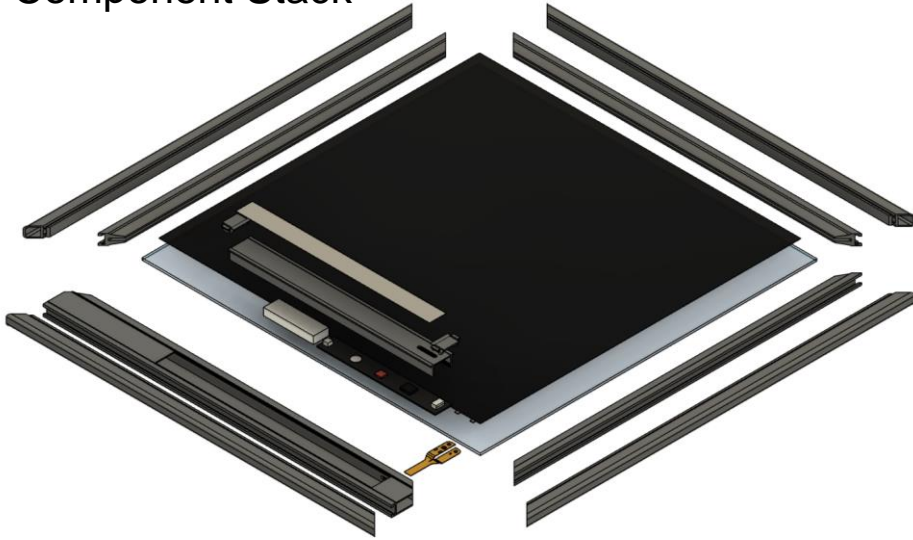
- Improve energy efficiency of your existing windows
- Reduce your energy usage
- Reduce your building's carbon emissions
- Easy installation – no fasteners; minimally invasive installation
- Solar-powered – entirely self-contained; does not require hardwiring into building
- Cost effective – affordable, with meaningful ROI and can be purchased or leased
- Convenient – transition your windows from clear to dark in seconds



# Smart Window Insert Design

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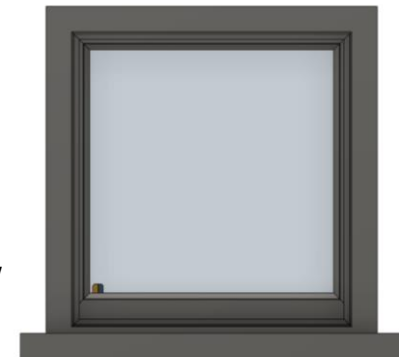
Component Stack



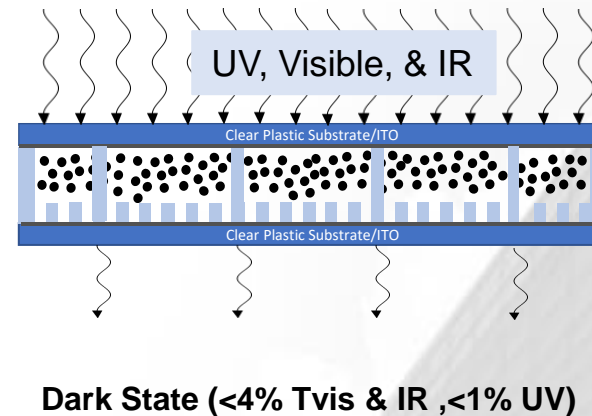
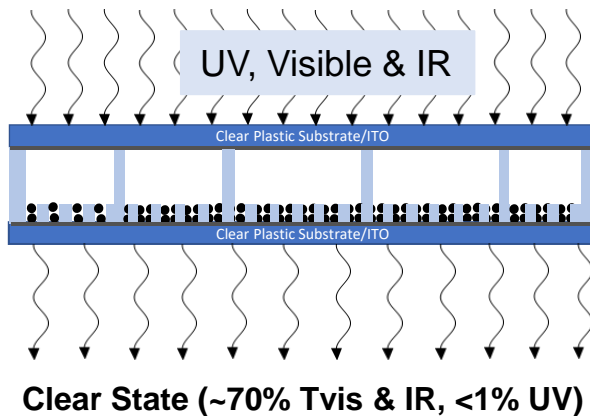
Exterior View



Interior View



# Crown Electrokinetic Technology Overview



## Technology Highlights

- Clear PET Substrates - Same material as window tinting films
- Transparent Conductor on PET – Indium Tin Oxide (ITO) - same as most touch screens
- Electronic Ink – Nanoparticles suspended in a fluid which absorb light
- Nanoparticles are controlled through DC low voltage applied to the ITO conductor material



# Why Now?

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Hewlett Packard's Printing Division invented technology, committed \$30MM for R&D and production facility – then abandoned in 2014.

Strong intellectual property portfolio protects DynamicTint from replication by third parties.

Previous “smart glass” technologies have failed to deliver on price, esthetics, energy and carbon reduction, cannot be retrofitted, ROI/payback period, and quality.

Commercial building sector under pressure from shareholders, tenants, regulators to REDUCE energy used of their buildings and REDUCE carbon emissions.

Crown's solution is specifically designed (with guidance from building owners) to resolve the failures of previous smart glass offerings.





# Market Potential

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Crown is targeting the 5.6 million existing commercial buildings in the United States representing approximately 87 billion of rentable square feet.<sup>1</sup>

Real Estate Investment Trusts (REIT's) are target customers.

Crown has engaged with 20 plus REIT's to understand and frame their problems and the potential Crown solution with iterative meetings/calls.

Crown is the ONLY company in the world that can make electrokinetic film

Only smart window insert targeted for retro fit market – largest smart glass opportunity

REIT's are engaged / assisting in design and deployment of Smart Window Insert

<sup>1</sup> University of Michigan - <http://css.umich.edu/factsheets/commercial-buildings-factsheet>



# Competitive Advantages

Technology	Can Retrofit	Power Usage	Can Tint to Black	Solar or Battery Powered	Tint Transition Speed	Light Transmission
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<b>DynamicTint™ Electrokinetic (EK)</b>	✓	<b>&lt;0.01 W/M2</b>	✓	✓	<b>&lt;2 sec</b>	<b>1.0% - 70%</b>
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**Electrochromic (EC)**  
(View, Inc., Kinestral,  
Sage/Saint Gobain)

×

0.3 – 2 W/M2  
(30X EK)

×

×

5-40 min

1% - 58%

**Suspended Polymers  
in Particles (SPD)**  
(Research Frontiers)

×

~1.3 W/M2  
(130X EK)

×

×

3 - 5 sec

3% - 62%

**Polymer Dispersed  
Liquid Crystal (PDLC)**  
(Various Manufacturers)

×

5 – 20 W/M2  
(500X EK)

×

×

1 – 3 sec

~80%  
\*Does not block light

Source: Company estimates and competitor publications

NOTE: Electrochromic competitors have raised billions to commercialize their technologies, e.g.:

-- VIEW Glass raised \$1.1 Billion in November 2018 and \$800 million prior from investors including Corning and Softbank Vision Fund

-- Kinestral raised \$100MM in a January 2019 Series D round and signed a \$100MM deal with Foxconn

-- Sage was acquired by Saint-Gobain in 2012



# Experienced Leadership

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## **Doug Croxall - Chief Executive Officer / Chairman of the Board**

Prior to Crown, Doug was Founder, CEO and Chairman of Marathon Patent Group from 2012 until 2017. Doug has invested in patents and technology-related companies since 1998. Education: BA Purdue University; MBA Pepperdine University.

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## **Eddie Kovalik - President / Chief Operating Officer**

Prior to Crown, Eddie was CEO of KLR Group, a Merchant Bank focused on the Energy sector. While at KLR, Eddie founded a number of portfolio companies including Rosehill Resources, Seawolf Water, and Prairie Partners, covering the oil & gas, water, and renewables spaces. Ed has over 24 years experience in the Energy sector.

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## **Kai Sato - Co-President / Chief Marketing Officer**

Prior to Crown, Kai founded Kaizen Reserve, Inc., a venture capital advisory firm for corporations and family offices. Previously, he has served as the chief marketing officer, chief innovation officer, and chief operating officer of various companies. Education: University of Southern California.

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## **Tim Koch - Chief Technology Officer / Co-Founder**

Former HP R&D manager for the electrokinetic film technology at HP Corvallis. Education: MS, Material Science & Engineering, Stanford University; BS, Material Science & Engineering, Cornell University

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## **Mindy Hamlin - VP of Engineering**

Prior to Crown, Mindy was Director of printing MEMS R&D and Manufacturing for HP, Inc. While at HP, Mindy managed the manufacturing process and equipment development for the roll-to-roll process used for large-area electronics and EK prototyping. She has over 30 years of experience in engineering and management of technology and manufacturing in the high-tech sector.

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## **Joel Krutz - Chief Financial Officer**

Prior to Crown, Joel was CFO of ViacomCBS Networks International, a \$2.0 billion division of the global multi-media enterprise. While at ViacomCBS, Joel led a team which fully overhauled the financial operating model and guided the business through a period of record growth, diversification, and expansion. Joel has been developing and leading strategic financial organizations, around the world, for over two decades.



# Investment Highlights

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## Large Addressable Market

- Targeting retrofit opportunities in commercial office buildings
- New construction smart glass market today in the US is \$3.8B, estimated \$6.8B by 2025

## Performance and Manufacturing Advantages

- Technology offers substantial performance advantages including lower manufacturing costs, fast transition speed, low energy, color choice

## Strong IP Portfolio

- 19 patents, 7 applications and plans to expand with ongoing inventions
- Global protection preventing competitors from making, using, or selling EK technology

## Global Partnerships

- Strategic investment from leading real estate company looking at architectural retrofit options
- Joint development agreements with world leading manufacturers for automotive applications

## Experienced Team

- 150 years of combined experience in technology development – material science, physics, chemistry, and micro-fluidic technology
- Key personnel developed technology at HP



# APPENDIX

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# Key People

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## **Eddie Gordon – Senior Manufacturing Engineer**

Prior to Crown Eddie was Sr Manager Manufacturing at Tesla managing all day-to-day manufacturing operations of a facility handling dry battery electrode processing facility. Supporting Engineering, Quality, Logistics, Production, Maintenance, and Procurement. Eddie has 18 years of manufacturing experience in which 12 plus years' leading manufacturing operations, as well as experience in the window fashions industry, pre-fab construction, commercial solar, residential solar and lithium-ion battery manufacturing.

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## **Steve Hojnowski – Product Development Lead**

Prior to Crown, Steve was the Director of Operations at RavenWindow, a passive dynamic glazing technology focused on the commercial fenestration sector. Prior to that, Steve led research and development teams focused on strategic emerging technology and innovation at JELD-WEN, Madico (FTI) and St Gobain (Bekaert). Steve has over 30 years experience in the R2R optical thin films, fenestration and dynamic glazing sectors.

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## **Lorin Johnson – Senior Development Engineer**

Prior to Crown, Lorin was Engineering Manager at Carestream, who provided toll coating services and produced printable X-ray film. Lorin has many years of manufacturing experience in a variety of positions and companies, including Director of Operations at Intel, supplying processor kits globally; and a Business Owner of a Cartridge World franchise.

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## **Jon Scully – Senior Software Development Engineer**

Prior to Crown, Jon was Software Engineering Manager and Architect at Lightspeed Aviation, the leader in aviation headsets and accessories since 1996. While at Lightspeed, Jon introduced modern software architecture, agile development methodologies and automated CI/CD systems to support fully integrated embedded platforms, mobile devices and cloud services, including seamless OTA upgrade paths. Jon has more than 28 years of experience in the software development arena, including the successful release of medical, avionics, computer vision-based and industrial instrumentation products.

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## **Jeff Kroon – Senior Development Engineer**

Prior to joining Crown Jeff was a product and process engineer at Carestream Health focused on new product development. In his nearly 30-year career at Carestream Health and Kodak Jeff has worked on numerous consumer, medical, and display film projects with primary focus on thin film coating and polyester casting.



# Key People

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## **James Abbott – Director of Electronic Film Engineering**

Prior to Crown, Jim was the technical leader for advanced thin film materials R&D and manufacturing at HP's US MEMS foundry. He has extensive experience building and leading teams to invent and commercialize advanced technologies. Education: Ph.D., Physical Chemistry, Oregon State University

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## **Palitha Wickramanayake – Electronic Ink Chemist**

Over 25 years developing new inks for HP's Thermal Inkjet (TIJ) printer products. Education: Ph.D., Organic Analytical Chemistry; Dept. of Chemistry, Dalhousie University, Halifax, N.S., Canada ; B.Sc., Chemistry Honors, Physics Minor; University of Sri Lanka.

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## **Brad Benson – Senior Reliability Engineer**

Former HP R&D integration engineer for the electrokinetic (EK) film technology at HP Corvallis. Education: Ph.D., Material Science; MS, Materials & Mechanical Engineering; BS, Geology, Washington State University

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## **Cassady Roop – Senior Electronic Systems Engineer**

10 years at HP designing electrical and mechanical hardware for complex systems, especially EK. Developed all the electronics systems for EK films at HP. Education: BS, Computer Science, Oregon State University.

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## **Lee Turnbull – Electronic Film and Ink Technician**

Over 15 years of experience on ink development for HP's Thermal Inkjet products. Education: BS, Agricultural Engineering Technology, Oregon State University; AA, Chemistry and Physics, Linn-Benton Community College.

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# Benefits of DynamicTint™

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## Affordable

Roll-to-Roll manufacturing, inexpensive materials, and lower energy costs to operate

## Low Energy Requirements

Low voltage and can be powered by solar strip, battery, or existing electrical infrastructure

## Retrofit

Insert application eliminates the need to replace single pane windows with dual pane windows

## Speed

Transition time is typically under ~2 seconds

## Color Neutral

Pigment is designed to be color neutral and will not affect the hue of what is viewed through the window in the dark or tinted state

## Sustainable

Reducing waste, reducing energy consumption and using renewable energy





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