



GBN Bulletin- August 2017

Greetings!

The first half of 2017 is off to a strong start, with lots of new transactions and exciting developments in the Green Bank world.

Australia's Clean Energy Finance Corporation (CEFC) had a strong second quarter, closing many new transactions, including in new sectors such as rail transport and lithium mining to support electric vehicle and energy storage supply chains. NY Green Bank has closed several new transactions, and recently announced they have officially achieved positive net income one year ahead of schedule, generating \$2.7 million in net income as a result of \$291.6 million in investments in clean energy transactions. GreenTech Malaysia has a new CEO and is looking to put its new budget allocation to work, and the Green Finance Organisation (Japan) continues to support local job creation and clean energy projects, including offshore wind. CT Green Bank won Harvard University's prestigious Innovations in American Government Award and passed the milestone of \$100 million in total closed PACE financing. UK Green Investment Bank (GIB) is moving forward with its privatization process, and recently showcased its first 100 projects supporting green infrastructure across the UK. See details on recent member transactions below.

On September 18, NYGB and CTGB will co-host the annual Green Bank Congress, a full-day event during ClimateWeek NYC. See the preliminary agenda and register here to secure your spot.

Interest in the Green Bank model continues to grow around the world. Green Bank leaders gathered in Mexico in June to discuss the potential for the Green Bank model in the Latin America and Caribbean region to work with

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National Development Banks in catalyzing new green investments to meet climate and development goals.

announced the creation of <u>five green finance pilot zones</u> and a new Climate Finance Unit is being developed in South Africa. Meanwhile in the US, the District of Columbia (DC) has introduced <u>new Green Bank legislation</u>.

New publications on Green Banks include a paper from CGC exploring <u>National Green Banks in Developing Countries</u>, and a report from NRDC on <u>National Development Banks and Green Investment Banks in Latin America</u>.

Happy reading,

GBN Team (NRDC and CGC)





Table of Contents:

- 1. Greetings
- 2. Recent GBN Member Transactions
- 3. Green Bank Events
- 4. Reports and White Papers
- 6. Spotlight on a Green Banker

Recent GBN Member Transactions

Clean Energy Finance Corporation

During the 2016-2017 year, the CEFC made investment commitments of almost A\$2.1B, across 35 transactions, with the increased value and scale of CEFC activity eclipsing prior year commitments. In its first four years, the CEFC has made investment commitments of A\$4.3B, in projects with a total value of A\$11B. See the CEFC infographic.

The CEFC continues its commitment to solar, both large and small-scale, with its solar investment commitments surpassing A\$780M on and unlocking projects and programs valued at over A\$2B. And notably their Large-Scale Solar Program closed financing for its 10th project, bringing its total Large-Scale Solar Program investment commitments to more than A\$370M. One example from last quarter is the CEFC's commitment of A\$60M to help redevelop a disused coal-fired power station as a 42.5MW (AC) solar farm.

CEFC also committed A\$20M to a lithium mining project that will boost the supply chain for electric vehicles and energy storage. In its first investment in a Western Australia mining project of this type, the CEFC was a cornerstone investor in a A\$100M senior secured bond issued by Pilgangoora Operations Pty Ltd, a wholly-owned subsidiary of ASX-listed Pilbara Minerals Limited.

The CEFC made its first investment in clean energy transport infrastructure, committing up to A\$150M to a

through a seven-year bilateral term debt facility to assist keading freight and logistics company Qube Holdings Limited in providing medium-term finance for the staged construction of the intermodal terminal, which is targeting full capacity in 2030.

Working with leading resource recovery company ResourceCo, the CEFC is lending A\$30M to build two new plants that will transform selected non-recyclable waste streams into solid fuel, known as Processed Engineered Fuel (PEF).

The CEFC also <u>committed A\$20M to Australia's first peer-to-peer green lending platform</u>, RateSetter's Green Loan marketplace, a new online platform to bring together investors, borrowers and clean energy product providers.

The CEFC has made a <u>A\$10M cornerstone investment</u> to help Artesian raise A\$26M for its Clean Energy Seed Fund, which will target scalable, high growth potential startups fueling innovation and creating opportunities in the development of clean technology.

As part of an AU A\$100M issuance supporting low-carbon buildings, the CEFC committed <u>A\$19M to Investa Commercial Property Fund's first Green Bond</u>, which was certified by the Climate Bonds Initiative.

The CEFC provided an <u>A\$180M boost to NAB Energy Efficient Bonus Program</u>, which provides customers with a 0.7 per cent discount on finance for eligible clean energy investments, such as vehicles, energy efficient irrigation systems, solar PV, building upgrades, lighting upgrades, processing line improvements and refrigeration. Overall, CEFC finance has delivered more than 2,000 investments in energy efficiency equipment and low emissions vehicles Australia-wide.

See all latest transactions and media releases on CEFC website.

Connecticut Green Bank

The Connecticut Green Bank continues its commitment to growing clean energy investment, with a focus on solar, energy efficiency, hydro and other technologies. The Connecticut Green Bank was recently named the <u>winner of the 2017 Innovations in American Government Award</u> from the Ash Center for Democratic Governance and Innovation at Harvard University.

In July the Connecticut Green Bank announced its C-PACE (Commercial Property Assessed Clean Energy) program reached the milestone of \$100 million in total closed project financing. C-PACE enables building owners to finance qualifying energy efficiency and renewable energy improvements through a voluntary assessment on their property tax bill. Reaching \$100 million in closed project financing positions Connecticut's program as a national leader: According to market data from PACENation, an industry group promoting Property Assessed Clean Energy, California (with a population 10X that of Connecticut's) is the only state to have closed a larger total sum of project financing for commercial PACE projects. The project that propelled the Green Bank over this milestone will be installed at Farmington Sports Arena, which installed two solar PV systems on site, totaling 170 kW.

The Connecticut Green Bank, in association with Energize CT and select local lenders and contractors announced it is offering a new low rate of 0.99% on home energy improvement loans. The new low rate is being offered as part of the Smart-E Bundle program, which is available when homeowners choose to finance two or more qualifying energy efficiency projects and includes current special single measure promotions such as natural gas conversion and heat pump installations.

The Connecticut Green Bank is providing financing for a solar PV system at an affordable housing project in Norwalk, CT. The <u>Connecticut Green Bank worked with GRID Alternatives</u>, America's largest nonprofit solar installer, on the project, which marks GRID Alternatives' expansion of its multifamily affordable solar program into the Connecticut market. It also includes energy efficiency education for residents and handson solar workforce training for local job trainees and community college students.

The Housing Authority of the Town of Manchester announced the completion of a 125 kW ground mount solar PV system at Westhill Garden apartments, reducing utility costs for 275 units of the Housing Authority's affordable senior housing portfolio. The new solar PV system is the largest ground mounted system serving a housing authority in the state of Connecticut. The system is expected to produce energy savings of approximately \$25,000 per year and provide additional revenue to the Housing Authority under a long-term Zero Emission Renewable Energy Credit (ZREC) contract between the Housing Authority and Eversource, which should generate approximately \$12,800 annually for 15 years.

The Connecticut Green Bank also continues to facilitate home energy investments via its <u>Smart-E Loan</u> program, its <u>multifamily housing loans</u>, its work with <u>Solarize CT</u> and work with <u>PosiGen</u>, and to support energy efficiency and on-site renewables via its <u>C-PACE</u> program, and <u>multifamily housing loans</u> programs, among other initiatives. See the descriptions of Connecticut Green Bank's products and programs <u>here</u> to learn more.

Green Finance Organisation (Japan)

The Green Finance Organisation of Japan continues its commitment to growing local clean energy investment and revitalizing local communities, with investments covering on and offshore renewables including wind, biomass and other technologies.

A recent project is Green Finance Organization's <u>investment in and offshore wind energy power generation</u> <u>project</u> in Aomori Prefecture

Green Finance Organisation of Japan announced that it has committed to invest 500 million yen in an offshore wind power generation project in Aomori Prefecture. The project, located at the Mutsu Ogawahara Port, has the plan to develop about 80,000 kW wind power generation. The equity investment contributes to the development of the Japanese offshore wind power generation business. GFO's investment with private investors is expected to spur additional private sector investment and also debt finance by local financial institutions. Through the maintenance works of wind power generation by local companies, the project will create new jobs and cultivate related industries in the local economy.

Green Tech Malaysia

The <u>Green Technology Financing Scheme (GTFS)</u> is expected to continue for another 5 years with an increase in financing target of RM5 billion (over 1.1 billion USD). Ending this year, to date the Scheme has produced local green technology entrepreneurs with a funding of RM3.392 billion for 293 projects. In the 2nd quarter of 2017, a total of 27 projects had been certified under GTFS carrying a total certified green technology cost of RM 615.5 million. Notable transactions include: installation of a district cooling plant complete with a thermal energy storage system to supply chilled water for the purpose of providing air-conditioning services (SPCJ GreenTech Solar Sdn. Bhd), manufacturing of plastic waste to fuel conversion (Syngas Sdn Bhd), 20 MWp large scale solar waste disposal site in Penang (PLB Green Solar Sdn Bhd), a

9.95 MW Biomass Power Plant using Rice Husk under Feed-in-Tariff (FiT) at Kuala Nerang, Kedah (Majunaka Eco Energy Sdn Bhd).

See the full list of projects here.

New York Green Bank

NY Green Bank continues its commitment to growing clean energy investment, with transactions in solar, energy efficiency, wind and other technologies.

In June, NY Green Bank also announced a major milestone: during the fiscal year 2016-2017, NY Green Bank achieved positive net income, generating \$2.7 million as a result of \$291.6 million in investments in clean energy transactions across New York. Achieved one year ahead of schedule and without using all the funds the state allocated for admin expenses, this positive net income surpassed expectations, and the income will be re-invested for future transactions, ensuring New York customers are receiving greater clean energy benefits for every public dollar put to use. As of the end of Q2, NY Green Bank's overall portfolio is expected to reduce between 4.3 and 6.4 million metric tons of greenhouse gas emissions, which is the equivalent of taking between 50,000 and 70,000 cars off the road for 20 years.

In May, NY Green Bank announced a new transaction with Motivate, the parent company of NYC Bike Share (NYCBS) program, known by its title sponsorship name "Citi Bike." NYGB's participation will help fund the completion of NYCBS' Phase II expansion, which will increase the Citi Bike system by 2,000 bikes primarily located in Low to Moderate (LMI) neighborhoods in Harlem, Queens, and Brooklyn. NYCBS generates revenue through the sale of annual, three-day, or daily memberships and through the sale of corporate sponsorships. Despite robust cash flows and growing membership, NYCBS has encountered challenges accessing private capital that is structured and priced to reflect the strength of its business model largely due to the nascency of the bike share asset class and limited comparable transactions. Proceeds from the credit facilities will expand the Citi Bike system to LMI neighborhoods and will restructure NYCBS' current financing to better position the company for future growth. This innovative securitization structure for the sustainable and clean energy asset class will provide a template for other asset-centric companies with predictable cash flows in similar sectors.

NYGB also closed a transaction with <u>Sunrun, Inc., increasing opportunities for NY residents to go solar, while expanding market liquidity</u>. NYGB closed a \$15 MM commitment toward a \$202.0 MM aggregation-to-term loan facility with Suntrust and ING to provide Sunrun, Inc. with a larger financing to expand its residential solar provider business in NYS and elsewhere. The \$202 MM facilities support a \$100 million equity partnership with National Grid, an international utility with sizeable US presence. This is NYGB's third transaction with Sunrun, a national solar provider that markets and develops residential solar energy systems. The three complementary transactions (one construction financing and two post-construction financings) aggregate bundled pools of residential solar systems that will ultimately be refinanced through one or more longer-term take-out financings.

Given that the bank market for such credit facilities remains limited, NYGB's participation enables larger aggregation facilities than would otherwise be achieved. Through increased scale, the aggregation-to-term transactions are expected post-aggregation to draw new investors and financial institutions into the marketplace, decreasing the cost of capital for solar developers and installers, and in turn, the cost of solar power equipment sold or leased to homeowners.

UK Green Investment Bank

The UKGIB has released a new report, <u>Celebrating 100 Projects</u>, highlighting its 100 project milestone. In a little under five years, UKGIB has profitably invested nearly £3.5 billion in 100 UK green infrastructure projects, mobilizing a further £12 billion into the low-carbon economy. Target sectors include energy-from-waste, offshore wind, and other green infrastructure. See the new <u>video</u> and read the <u>report</u> for more information.

Some highlights from UKGIB's 100 projects show the diversity of projects that UKGIB has been involved in. UKGIB's 62nd project, for example, involved a commitment to a major <u>energy-fromwaste plant in Northern Ireland</u>. UGIB's 96th investment, <u>Kent County Council streetlighting project</u>, provided partial financing for the biggest non-Private Finance Initiative LED streetlighting project in the UK to date. UKGIB also created the <u>world's first offshore wind fund</u>, which surpassed £1 billion this year.



It was also recently announced that Morocco's first Green Bond, for which UKGIB provided the assessment of CO2 emissions reductions, was recently completed, attracting € 135 million from investors IFC, a member of the World Bank Group, and Proparco, private sector financing arm of Agence Française de Développement (AFD).

See the full list of UKGIB investments here.

Recent and Upcoming Events

Green Bank Network Events

Green Bank Congress

18 September 2017 in New York City

The Connecticut Green Bank and NY Green Bank, in coordination with the Green Bank Network, will jointly host the 5th Annual Green Bank Congress on September 18th, 2017 in New York City. The event is part of ClimateWeek NYC and is the day before the Sustainable Investment Forum.

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Implementing the goals set out in the Paris agreement will require dedicated local capacity to drive investment and financial innovation. The need to scale up existing Green Banks and develop new Green Banks (and similar dedicated finance entities) around the world is becoming increasingly clear. Attendage

working to create more opportunities for private financiers to do deals in promising new sectors, and b) how new Green Banks in emerging markets can open new investment opportunities.

See the agenda and register here to reserve your spot!

Register Here

Regional Latin America Workshop

26-27 June 2017 in Mexico City

The Green Bank Network, along with the InterAmerican Development Bank, the OECD, Mexico's National Bank for Public Works and Services (BANOBRAS), and the Latin American Association of Development Financing Institutions (ALIDE) hosted a regional workshop event in Mexico City. The two day event, titled National Development Banks and Green Banks: Key Institutions



for Mobilizing Finance featured experts on clean energy finance, Green Banks, and national development banks including UK Green Investment Bank, Australia's Clean Energy Finance Corporation, Connecticut Green Bank, Green Tech Malaysia, Banobras, NAFIN, BNDES, OECD, ALIDE, Inter-American Development Bank and many more. The objective of this event was to offer a space for discussion of the role of banks in the financing of the NDCs and the development of innovative instruments for the leverage of green investments in the region.

Green Bank Network Webinar Series

The GBN hosted two webinars: Financing Clean Energy in Affordable Housing Through Green Banks: CT Green Bank Approaches and Opportunities for Public and Private Finance to Accelerate Growth of the Electric Vehicle Market

Watch them online on the <u>Webinars and Videos page</u> on the Green Bank Network website.



Member Events

Clean Energy Finance Corporation

CEFC CEO lan Learmonth spoke at the annual <u>Australian</u> <u>Clean Energy Summit</u> held 18-19 July 2017. The agenda included two days of sessions where heads of industry, government and finance shared models, trends and technology innovations that they are leveraging to drive renewable energy adoption, and overcome barriers in its deployment. Past summits have included speakers from the

green finance across Australia. See highlights from the event, including speaker presentations.

The CEFC hosted industry events to discuss how the property sector can use readily available existing technologies to improve the long-term prospects for their properties, in a broader industry push towards net zero carbon buildings. The CEFC and consultants Norman Disney & Young produced a new report, Energy in Buildings:50 Best Practice Initiatives, bringing together the insights of major investors across the property sector, many of whom are at the forefront of Australia's clean energy transition.



The Australian Parliament hosted the Innovating Energy

<u>Summit</u> on 14 August 2017, with the CEFC among government agencies discussing latest developments and investments with parliamentarians as well as members of the public. The CEFC will also present at the 6-7 September conference on <u>Disruption and the Energy Industry</u>, as well as the 19-21 September <u>Wind</u> Farms 2020 Summit.

Connecticut Green Bank

On 27 July 2017, Connecticut Green Bank accepted the Innovations in American Government Award for its "Sparking the Green Bank Movement" nomination. The award was provided by Harvard University's Ash Center for Democratic Governance and Innovation and the event was hosted at the State House in Hartford, Connecticut.

Bryan Garcia, President and CEO of Connecticut Green Bank will be speaking at the <u>Catalysts of the Climate</u>



<u>Economy: National Innovation Summit</u> to be held on 6-8 September at the University of Vermont in Burlington VT. Entrepreneurs, investors, and thought leaders who are accelerating economic development will gather to discuss the unprecedented challenges presented by climate change.

Green Tech Malaysia

Green Tech Malaysia participated in the Astana Expo 2017 – Future Energy held in Astana, Kazakhstan. The Malaysia Pavilion at the Astana Expo is managed by GreenTech Malaysia and showcases and promotes Malaysia's best practices, products & services in the green technology and energy sector. Malaysia Pavilion's theme is 'Powering Green Growth. The week of 17-21 July featured panels on Islamic Green Financing where experts in the field will delivered talks and participate in panel discussions on the subject.



Alfred Griffin, President of NY Green Bank, will be speaking at the <u>Sustainable Investment Forum</u> on 19 September 2017 in New York City. The event will welcome over 350 attendees representing asset owners and managers, commercial banks, development banks, private venture capitalists, technology developers, mayors and



national policy makers all looking to drive investment in green innovation. Alfred Griffin discuss the NY Green Bank's work, and new tools for greening traditional finance.

NYGB will also be hosting a <u>webinar on 29 August</u>, covering the latest quarterly metrics report, which shows continued progress – with a portfolio of projects supporting a total investment in New York State of between \$1.2 and \$1.4 billion.

During the second quarter of 2017, NYGB participated in 16 events including multiple technical conferences hosted by the Department of Public Service with a focus on roles NYGB could play to advance clean energy financing solutions for CDG and LMI, respectively; the annual <u>ACORE Renewable Energy Finance Forum</u> in NYC; and the Business Council of New York State's <u>2017 Renewable Energy Conference</u> in Poughkeepsie, NY.

UK Green Investment Bank

UKGIB's Nick Gardiner, Head of Offshore Wind, spoke at Offshore Wind Energy, on 6 June 2017 in London. The panel topics covered the outlook in European offshore wind markets, trends in international markets, the ongoing consolidation among industry players and the impact of auction systems on offshore wind markets.

At the World Waste to Energy & Resources Summit, 23-24 May 2017 in London, UKGIB's Chris Holmes, Head of



Waste and Bioenergy, spoke on a panel on "Assessing Risk in the Face of Market Uncertainty" to discuss investor confidence, recent trends, and opportunities on the horizon.

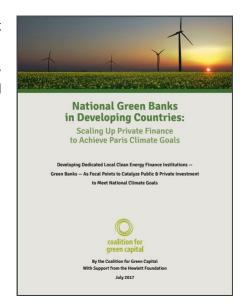
UKGIB's lain Watson, Director of Energy Efficiency, spoke at the UK's <u>All Energy conference</u> on 10 May 2017. The All Energy conference UK's largest event devoted to all forms of renewable & sustainable energy and lain spoke on a panel covering sustainable cities and translating policy into projects.

Reports and Whitepapers

National Green Banks in Developing Countries: Scaling Up Private Finance to Achieve Paris Climate Goals

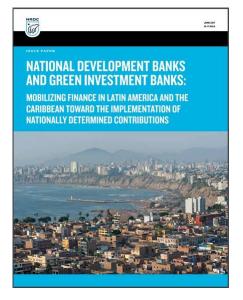
The Coalition for Green Capital (CGC), with support from the Hewlett Foundation, published a new paper exploring how the Green Bank model can be implemented in emerging markets to help achieve national climate goals: <u>National Green Banks in Developing</u>

<u>Goals</u>. The paper examines how Green Banks (either purpose-built entities or adaptations of existing institutions) can be effective in channeling investment from carbon to clean in emerging economies and in driving global clean energy investment to the scale required to achieve international climate goals.



National Development Banks and Green Investment Banks: Mobilizing Finance in Latin America and the Caribbean Toward the Implementation of Nationally Determined Contributions

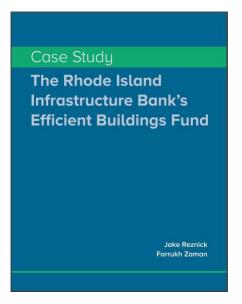
A new issue paper was prepared by the Natural Resources Defense Council with the support of Climate Finance Advisors in preparation for the June conference in Mexico City. The paper is intended to provide context for the more thorough examination of: a) potential opportunities for knowledge exchanges between existing green investment banks (GIBs) and national development banks (NDBs) in the Latin America and Caribbean (LAC) region; and b) ways in which the green investment bank model could be adapted to the LAC context to enhance the region's ability to invest in low-carbon and climate resilient infrastructure at the scale and pace required to meet NDCs and achieve SDGs.



New case studies from Yale Center for Business and the Environment and Coalition for Green Capital

Case Study: Connecticut's Residential Solar Program covers how the Connecticut Green Bank supported the design and adoption of legislation that expanded the Residential Solar Investment Program (RSIP) by creating the Solar Home Renewable Energy Credit (SHREC). The SHREC provides a stable funding structure for an expanded RSIP.

Case Study: The Rhode Island Infrastructure Bank's Efficient Buildings Fund covers how Rhode Island Infrastructure Bank (RIIB), a quasi-public state entity which combines the features of a Green Bank and an infrastructure bank, was developed under new political leadership from state treasurer, Seth Magaziner, and Governor Gina Raimondo. RIIB seeks to bring much-needed clean-energy finance



into the state market. This case study describes how RIIB set up the Efficient Buildings Fund and is iteratively improving it.

New Report from UKGIB on First 100 Projects

In its first four years, UKGIB has worked with over 100 commercial partners, across a dozen green technologies and delivered new projects in every part of the UK. Over that time UKGIB has seen huge change in the markets they support and signs of positive momentum, building relentlessly, in every part of the world. In its report Celebrating 100 Projects, UKGIB looks back at some of the developments and events that have shaped the last four years and looks forward to the themes they expect to dominate the future of green energy.



New Market Report from CEFC

The CEFC engaged engineering consultants Norman Disney & Young to create a handbook titled Energy in Buildings: 50 Best
Practice Initiatives
Initiatives
<a



Spotlight on a Green Banker

Gloria Chan Director, Corporate and Project Finance, and Large-Scale Solar Program Co-Lead, Australian Clean Energy Finance Corporation

What is your role at the CEFC in a nutshell?

I co-lead the CEFC's Large-Scale Solar Program, which is focused on accelerating investment in large-scale solar farm developments around Australia. We invest via both debt and equity, working alongside other

projects, and to take advantage of Australia's abundant sunshine and access to land.

How has the large-scale solar sector in Australia evolved in the last few years?

Since the CEFC's first investment in large-scale solar in 2013, we have seen a remarkable transformation in the sector in Australia. Solar has become a progressively cost-competitive energy source and we are now at the tipping point of seeing Australian utility-scale solar projects becoming commercially-viable without grant funding.



Large-scale solar is still only a small part of Australia's energy mix, contributing maybe 1% of total annual energy generation, but it is growing rapidly. To give you an idea of the pace of growth, in 2012, there was only 18MW of large-scale installed solar PV capacity in Australia. By the end of 2016, that amount had grown to around 350MW and by the end of 2018, we expect to reach 1000MW. And there is still a long way to go from there as we continue to decarbonise our electricity sector.

How does CEFC work to grow the solar sector in Australia, and what might the future hold?

There's been a strong influx of developers into the sector and an increasing investment appetite from a widening base of institutional investors, which has helped drive the growth in our solar capacity. CEFC finance has helped developers secure the backing they need and has helped investors find the right level of comfort to invest, so that projects can be constructed sooner.

To August 2017, we'd committed over \$900 million to small- and large-scale solar across Australia with a total project value of \$2.7 billion. This includes financing over 20 large-scale solar projects across Australia with total capacity of more than 600MW.

Going forward, the CEFC remains committed to financing more large-scale solar projects where we are needed, and we're particularly keen to see projects that support grid stability. We're also looking at hybrid projects that combine solar with other technologies such as battery storage or pumped hydro in a way that promotes more effective clean energy outcomes

What do you enjoy most about your job?

I've wanted to work at the CEFC since its inception so in that sense it's my dream job, and it's turned out to be everything I have wanted and more! I enjoy being able to use my financing skills to contribute to the push towards continued global emissions reductions, as well as being able to work with a wonderful bunch of highly intelligent people working towards the same lofty goal.



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