Public Written Comments

Submitted to PCAST

September 4, 2012 to November 27, 2012

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From: Sergio Rossi [redacted]
Sent: Thursday, September 27, 2012 3:44 PM
To: Scholz, Amber Hartman
Subject: Dreaming The Impossible: One Way to Support Obama's Economic Plan

Hi Amber,

I am presenting to you an innovative, proven, sustainable & repeatable solution to support Obama's Economic Plan using 4 elements:

1) **Increase manufacturing competitiveness**
As outlined on the PCAST AMP Steering committee report, recommendation # 1 (page 14) about manufacturing processes. Plants continuously suffer losses ranging from 2-25% caused by reduced machinery performance. By increasing machinery performance and reliability using our innovative solution, products manufactured in America can be made for less which will generate more demand that activates the economy and generates more jobs.

2) **Reduce electrical energy**
Machinery running at reduced performance waste between 1-10% electrical energy. A process for improving machinery performance will increase energy efficiency and conservation, recommendation # 16. Using the savings generated to reduce final price will further activate the economy and generate more jobs.

3) **Significantly minimize safety and environmental risks**

4) **Create jobs immediately while reducing waste and putting billions of dollars back into the economy**

This innovative solution supports the efforts of the White House and can produce measurable results in less than 30 days. Using this solution within this time frame, will allow the President of the United States, Barack Obama, to show immediate results of his economic plan and further support the continuation of his efforts 4 more years. I believe this solution will have the greatest impact on the growth and competitiveness of the United States in the shortest amount of time because it requires elements that are readily available. An educated guess put the wasted value between 1-4% of GDP which could generate and sustain thousands of jobs. In addition to improving manufacturing competitiveness, the DOD & DOE could also benefit from applying this solution to their equipment and further creating more jobs while reducing waste.

This patented solution has the support of one of the largest USA engineering firms in the world to introduce this solution immediately, regardless of the number of manufacturing machinery, type of industry or applications.

Please, if possible, thank Michelle Obama for giving me the courage of "Dreaming The Impossible" and thank Barack Obama for giving me an shot at the opportunity to live "The American dream."

Hope to hear back from you soon so we can further discuss a way to further improve American

competitiveness and create more jobs.

Best,

Sergio
www.RP4M.com
[redacted]
Owner - Electrical Engineer

From: 10[redacted]
Sent: Saturday, October 20, 2012 10:34 AM
To: thierno[redacted]President Barack Obama
Subject: TO BARACK OBAMA - LAST DEBATE - TOP SECRET
Importance: High

LAST MESSAGE 0+1+0

TO
BARACK OBAMA - 2012

foreword

If I send you this message, 3 days before the next debate, it's for confidential reasons. Indeed, French administration and the french secrets services support The republicans. They spy me. So I apologize in advance for the mistakes in this text.

VERY IMPORTANT

Myth Romney is negociating with Syrian government, by the way and the support of the french freemasons (police + and secret service). The strategy is the same, about the Iran, between R. Reagan and J. Carter.

There is only one response to that : The countdown for a No Fly Zone. The countdown should be over the election day (Tuesday, 6 November 2012). The President Obama may vows, for an international defense action to protect syrian people, earlier in the monday morning (October 22). The message can be delivered in the presence of the US forces or in visiting a fellow like Muhammad Ali : "Float like a butterfly, sting like a bee".

It could be a tough starting point for the next debate.

FOREIGN POLICY

It's very important to bring new topics "subject" in the next debate. First of all the Obama's administration policy against the cyberwar. How to protect our country, our investments and our small business against cyber threats. We advice the President OBAMA to create the first civil program of Cyber Defense in the world : The US@ Patriots Act. It means to enroll the american citizens with good informatic skills to join the USA cyber defense program in order to seccure our nation and our economy against the new forms of war according to the 21 century. This program could be called : **The US@**

THE DEBATE

First of all, my congratulations to Barack Obama and the team. We appreciated as well the Blueray arguments provided by Barack Obama during the debate.

Regarding the Linguistic. We advise Obama do not use the word "AND" in the begining of his

sentences. He used this word a lot of time. The consequence is to broke his "flow".

Regarding Myth Romney he used a lot of time : "I will not, under any circumstances", so, we advice Obama to clear this point during the next debate. According the Foreign Policy, it's unresponsable for the commander in chief to maintain wrong policy, under any circumstances, because the circumstances for the US troops and the Diplomats could change, faster than campaign's promesses.

Jokes
It's important do not laugh or smile even on your own joke. You should keep the "In your face", for a while. For example during the next debate, we invite you to reveal how bizare Myth's policy can be. "It looks like a chinesse soccer team, you could'nt be sure, after the break, that the 11 players on the green are the same".

The Myth Romney's double face.

With Myth Romney you are sure to loose any Coin Toss, because he got the "double one face in the pocket". For example, when he denied the succes of Obama's jobs policy, he try to say that he will create much more jobs for american people. So, when Obama try to defend his own, Myth Romney repeats one hundred times that "the governement does not create jobs". So, Obama should insist on this point. "Myth Romney, how can you promise to create more jobs when you take the office, if you do believe that the governement does not create jobs? Who believe, the Myth of Monday, or the Romney of Friday?

What's more The Americans are thrilled to see Paul Ryan taking the office, as a default presidency and as a default commander in chief.

At least, We are so glad to see how you refused to answer to Myth Romney's questions, it's one of the key succes point of the last debate. Also, you can keep under the table the both answers : So What ! and Why Not?

For your information, feel free to use the formula www.obamawhynot.com, it's yours.

You lead, they follow. **Move Forward**

Thierno M. SOW
[redacted]
https://donate.barackobama.com/page/outreach/view/2012/ThiernoMsow

[redacted]
My Facebook - art page-

[redacted]

In 2008, America, because of the economic crisis, was a wreck. The republicans abandoned the broken car out of gas by the side of the highway. It tooks 4 long years for Barack Obama and his team to fix the economy and to repair this big machine. Now that it works, the rower wants to take a tour, driving backwards with american people. We say NO! We command the controls! The Americans doesn't like to go back to the past crooked and tortuous roads. The failure of the republicans prooves the end of the conservatism. The Americans have understood that the world has changed, that America is no longer the new world, but it may be the architect. It's in this context that they will have to choose between the TRUTH and the MYTH...

According to my last email on obama's strategy the new york times takes on his own my formula MYTH, talking about Mitt Romney. Well done:

See:
http://www.nytimes.com/2012/10/13/opinion/the-moderate-mitt-myth.html?hp

Message 0+1
---------- Original Message ----------
From: "10[redacted]
Sent : 10-09-2012 12:16 PM
Subject: UPDATE - DEBATE THE PRESIDENT - BARAC K OBAMA - 2012

TO
BARACK OBAMA - 2012

The UPDATE

On the Economy
A man come up to the green and propose his advices to the players. "I will give you the better strategy" : he said. Unfortunatly, he was talking to the winners. About Economy, where was you Mitt Romney in 2008. The battle against the economic depression is over, it's about time. We have good news for the americans.

Response to the Mitt Romney's speech at Virginia Military Institute, Oct. 8, 2012

I will not talk about Mitt Romney's experience on foreign policy but regarding our foreign policy, there is no doubt that the reset diplomacy is a part of the Arab Spring. The american leadership is the green lighthouse to the international relations. Our actions have proven that, on every conflict, our diplomacy has already succed. At any time you expect from Mitt Romney an innovative solution or a new idea, he proposes to Restore the default settings. That was the Mitt Romney's speech at Virgina. America's diplomacy is not a default leadership and America is not waiting for a default presidency. America's future is not in the default settings.

Subject: EYES ONLY - URGENT - CONFIDENTIAL DEBATE THE PRESIDENT - BARRACK OBAMA - 2012

Message 0

---------- Original Message ----------
From: "10[redacted]
Sent : 10-08-2012 06:40 AM
Subject: EYES ONLY - URGENT - CONFIDENTIAL DEBATE THE PRESIDENT - BAR RACK OBAMA - 2012

TO
BARACK OBAMA - 2012

First of all, I would like to congratulate BOB (Barrack OBama) for his clear and well understanding of the challenge that american economy should face next 4 years. They is no doubt, he was a little bit "underline" that his personal performance record.

In fact, the real truth is that most of the debate's topic may concern a face to face between Obama and G. W. Bush 4 years ago. The right place at the wrong time. This may explain why people are disapointed. This may prove that BOB's efforts were successful in preventing another depression, and in returning USA's economy to growth. Then, at the question : How Far We've Come? the answer sound like easy : Move Forward!

So, the wrong strategy is to defend the 4 last years office of BOB. Then we should turn the debate forward by introducing Mitt Romney under his real IMAGE (look) and to explain how wrong are the republican arguments. The Key words are the SOW (statement of work) and the strategy: The Plan.

For example, during the last debate, Mitt Romney said (1:18:43'-45') :

MR “ I don’t have any plan to cut education funding and grants that go to people going to college,”

MR : " I'am not planning to change there, you maked a very good point."

source http://www.youtube.com/watch?v=dkrwUU_YApE

We should cut and sample the key sentences in the same looping video : "I don’t have any plan" + "I'am not planning to change". Because, THAT IS ROMNEY'STATEMENT OF WORK. No Plan, No Change for The America!

Then the tough questions that BOB should Ask to Mitt Romney are : what would you change about my policy against terrorism? what would you change about my policy against don't ask, don't tell? what would you change about my policy for women and equity? what would you change about my policy for regulating wall street?etc. This is the best way to defend the Bilan and to reveal that the Republicans have NO PLAN and NO INTENTION TO CHANGE the OBAMA's legacy.

MYTH ROMNEY and THE HONNEY CARE : The Character.

What's more, Mitt Romney's look like is a commic nicknamed MYTH HONNEY. So What is THE HONNEY CARE : The character will promise to you a sweet honney in a candide's way of life. At his office, his statement is :"do you prefer the 2 (sweet) today or the 4 (sweet) twomorrow?". When the client is back the promise become : "do you prefer the 4 (sweet) today or the 8 (sweet) twomorrow?". etc...

The Move Forward

According to our formula, we should reveal Mitt Romney's strategy as "The Rower", because for many years Mitt Romney have been rowing backwards, facing the backwards of the America.

Debating with the journalist

It's Very important, for OBAMA to note that they have no obligation to anwser the questions as well as a good student presenting his grand oral. Obama should stears the debate on his own (ground). So don't care about questions (journalist) or Mitt Romney's bla bla. Obama should find the transitional words even if any to defend his text and program. This is the best way to prepare the next debate.

For example, regarding the Education's topic, we've noted that during the last debate, Mitt Romney is so proud to the quality of the Massachusetts system. But we should help him to remember that the Harvard University was established in 1636 and he was the 70'st Governor of Massachusetts for only 4 years (2003–2007). So it's impossible to make the confusion.

As conclusion, may the Obama's team will give a hand for the animation movie MYTH ROMNEY, No plan, No Change.

Thank you for your feedback.

MOVE FORWARD

Thierno M. SOW
[redacted]

[redacted]

[redacted]

My Facebook - art page-

[redacted]

From: Jack Gerard, API [redacted]
Sent: Tuesday, October 23, 2012 9:50 AM
To: Scholz, Amber Hartman
Subject: Tax reform, the oil & natural gas industry – and the facts

Click to view this email in a browser

October 23, 2012

Dear Amber,

Calls to raise taxes on America's oil and natural gas companies ignore the significant contribution our companies make to our economy and the federal treasury. We welcome a discussion on tax reform, but any informed discussion must deal with facts:

- America's oil and natural gas companies support more than 9 million jobs while contributing nearly 7.7 percent to our country's GDP, and we contribute $86 million a day to the U.S. Treasury, with an effective tax rate that's nearly double the average for all industries.

- We accounted for almost 14 percent of all U.S. industries' capital expenditures between 2008 and 2010, spending nearly $156 billion a year on infrastructure in America. In 2010, our companies contributed $476 billion to the U.S. economy – more than half the size of the 2009 stimulus package.

- There are no subsidies – and the oil and natural gas industry doesn't receive a dime in subsidized credits or unique "tax breaks." Tax provisions available to the oil and natural gas industry are normal business deductions available to all industries.

Since its inception, the tax code has permitted corporate taxpayers to reasonably deduct business expenses when calculating taxable income. The ability to recover costs fosters a strong and stable investment environment and benefits all types of businesses and industries. For our industry, it means oil and natural gas companies can make investment that will translate into more energy, more jobs and more government revenue.

In any discussion of corporate tax reform, our industry should be treated like other industries. Fairness demands that we not single out one industry – or a handful of companies within an industry – for higher taxes. A truly fair tax structure should promote domestic investment and international competitiveness.

Sincerely,

Jack N. Gerard
President & CEO
API

Follow our Blog to stay up-to-date

To stay up-to-date on the latest energy-related news, there is no better place to check than the Energy Tomorrow Blog.

About API:

API represents more than 500 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports 9.2 million U.S. jobs and 7.7 percent of the U.S. economy, delivers $86 million a day in revenue to our government, and, since 2000, has invested over $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

To learn more about API and the value of oil and natural gas, please visit API.org.

From: Trev Graham [redacted]
Sent: Wednesday, November 07, 2012 6:55 PM
To: CanberraUSAEmbassy[redacted]
[redacted]usrsaustralia[redacted]
Subject: A New World Process Built Into Programs & Projects To Empower People, Improve Business Systems & Jump Education Ten Years Creating Dynamic Socities, Solve Core Issues - A Package Australian Governments Took Illegally Breaking USA & Australia Laws Even ...

USA Embassy Australia -

Secretary of Education USA

Barack Obama - Congratulations on your victory

I forward this new world innovation that was built for the USA, United Kingdom/Europe and Australia initially but each time I make presentations to Governments, business leaders in Australia it is stolen - its that powerful but we built it into 25 components so it all needs to come together to be a self funding, highly profitable, 24/7 package available to everyone no matter their location or economic circumstances and every Corporation business, education institution wants to be in it,as it will go into every workplace, home etc.

Why did Australian Governments recognised its power and break laws six times to date to get it - well there is no Corruption Commission in Australia nor Ethical laws and the same politicians who stole it abused USA and Australian laws, and breaking United Nations IP Treaties and abused the Queen of England role and powers - its that powerful. A federal Minister and senior staff even reached into a Tender Box to take it out and use it.

Can I come to the USA again to implement it in partnership with you.

I realise the culture in Australia that corruption is now engrained can be seen in the Australian Murdoch News Corporations businesses exporting this culture to the United Kingdom in the phone hacking scandal -

if you want to follow through with "Yes We Can" driven by Corporations/businesses, Governments at all levels, all education institutions. all communities and involving all families and youth then I have the package for the USA.

On my past two trips across the USA, I:

- **made presentation to 25+ of top USA PhD educationalists in a Oregon University - who were overwhelmed that I had solved many of a nations issues and they followed me and over lunch continuously asked questions - then registered my innovation in Portland for the USA**
- **I met your national USA education leaders and in Washington DC John Lewis then President of NASSP offered to obtain funds from Capitol Hill**

but on returning to Australia got caught up in seeking justice and accountability of Australian Governments continuously abusing laws and protections just to use it. I had to protect the Queen of England as six times these Australian Government Ministers and their Secretaries of Education stole this USA and Australian pending Patent and broke USA and Australian laws to get it, broke United Nations IP Treaties and Conventions to get it, and by doing so undermined their BOSS the Queen of England who is the highest power in the nation of Australia as senior power and Constitutional Sovereign in the Australian Constitution.

How can Ministers of Governments be prepared to abuse the role and powers and position of the Queen and try and get away with it - just to get their hands on my innovation. I could not let this happen so I took them to Court yet these Ministers and Secretaries of Education who swear allegiance to the Queen to "provide good government" and to "protect the laws" got away as the Judges who heard the case ignored making a decision and thus allowed corruption in Australia to go on unabated and still leave the Queen open to being abused

These same Judges are not selected by a Committee nor the public in Australia, they are selected by the same politicians involved in the corruption so they select their own - so issues such as separation of Judges from politicians the establishment of real Corruption Commissions and Ethical laws are in the process of being addressed. I had to make sure the documented detailed evidence was included on all Court files even the Federal Court and High Court of Australia as future research documented evidence by Law students and others who over the next few years will bring the changes to Australia as a nation we demand and current Liberal and Labor Governments will not establish as well deal with the abuses hey did with me. The

So in my past working with highly ethical leaders in the past such as an Air Vice Marshall - Secretary of Defence etc, and I have wasted a decade trying to implement it in Australia could I ask you, can I come to the USA and work with you - together to implement this powerful package that will quickly jump the USA to be the leader of the world in many areas.

Hooked on Life Pty Ltd

ACN 091 059 648

www.skillsforlifeenhancement.com

[redacted]

Mobile: [redacted]

7 November 2012

His Excellency Mr Jeffrey L BLEICH
Ambassador
Embassy of the United States of America

Mr Anthony Bradford BRENNAN
Deputy High Commissioner
British High Commission

Does Your Country Seek To Implement A Education & Business Package To Lift The Quality Of Learning, Lift Skill Levels, Create Economic Growth

A Scoping Proposal can be obtained now so you are ready during 2013. We know how to establish own self-funding profitable "Business Innovation Support Centre's" inside you key organisations to link to the world and access relationships, partnerships, networks to bring in new powerful learning and business CONTENT that CONNECTS to all sectors/industries. A number of Governments and others have used it without our approval thinking they could implement what we present but it has and still does cost them. We built it into vast number of components and it needs all of them to become highly successful - and one of those components is trust and ethics.

Our package links Locally, Nationally, Internationally. It empowers existing education and training curriculum and content for Schools/Universities, Teachers & Students as it brings real world learning into every classroom, workplace and homes.

One component is to establish your own we developed *"Business Innovation Support Centre"* either on-line and/or a physical room with an invention area, a media area, projects area, business area, etc to:

- **connect quality curriculum content to each exciting curriculum subject being taught**
- **to the ethical business world to access wider resources, content, relationships, partnerships, funding, etc**
- **partner in projects to:**
    - **open the opportunities to see how each subject taught is applied**

- **access new revenues and profits.**

We will work in an ethical partnership to build/establish your own Centre.

The world is changing at a fast speed through technology, information and communication and it is now a world market and learning must look for new ways of not being left behind. The current system of teacher/whiteboard/text book has been used for decades. It's the time of real life learning we developed with a more focused interactive embrace of:

- **technology/information and**
- **content that comes alive, is interactive, real, relevant, empowering, engaging, exciting and with rewards learning by getting engaged in**
- **projects, programs, businesses, activities that create streams of revenues and profits when done jointly with**
- **ethical partnerships both high achieving professionals in all fields and key powerful organisations which will allow you access inside organisations to access real content for every teacher and student to learn by**

As a registered professional teacher who teaches across all methods, ex-College Council President of a large secondary College for 3 years, taught across primary, secondary and tertiary who holds five Degrees I understand the inside of the education sector and its real needs. Combined with extensive Government and private sector senior position in AID/Foreign Affairs and Defence senior management/Board member positions, owing a large 40 operation business experienced and saw what was wrong inside the Corporate/business world and thought what caused this lack of skills and ability to be creative and how could all these issues be fixed.

We found the answers after extensive research worldwide that:

- **the education systems of the world failed to really connect to the world of work and**
- **because of this failed to teach real skills**

so we built:

- **the new world process "Life Management Skills Enhancement" (refer Internet) then**
- **registered it as a USA and Australian pending Patent. Refer www.skillsforlifeenhancement.com.**

Throughout the 1980's and 1990's we sought to have Governments to realise the important of connecting and they wrote back they were not interested until we took to our content and we met Australian Government Ministers and made presentations and they were overwhelmed they had to have it unfortunately without ethically involving us - six times - then we saw them introduce the "school to work" program and programs from it.

To date we first turned to Governments to seek funding and support but saw them use the content we left to build 245 Business Enterprise Centres and 31 LLENS Centres yet these cost Governments to maintain. They saw we had something the world needs and wants and tried to copy it rather than invest in it yet the success of this new world approach relies not on one body wanting it for themselves but with a number of ethical partners working

together in trust bringing each of their products, services, needs together under one powerful umbrella. The same Centres implemented in the UK have been closed.

We knew it had to be <u>a commercial process</u> as Government funding is not reliable, it had to attract every Corporation to want to be involved to help provide new revenue streams, it <u>had to be self-funding and profitable and grow year after year.</u> It will only work:

- **when a group all works together as one and**
- **each Schools/Colleges working direct and in partnership with**
- **each Peak Business and Community Associations, Corporations and businesses to build it together and**
- **sharing all rewards directly - to you**

We are talking with USA peak Associations and Corporations and after two tours of the USA talking with national leaders and making presentation to 25+ of the USA top PhD educationalists at a University in Portland, there was great interest and an offer to implement it there so with two signed contracts already with two national bodies, we seek to build a bridge between the USA and United Kingdom/Europe, Asia with Australia and you.

<u>Scoping</u>

First to include your nation if you are interested it means a Scoping Proposal so you are ready for 2013 and to have your *own "Business Innovation Support Centre"* either on-line only or both in on-line and a physical room on your site. There is a Fee to undertake a Scoping Review.

Should we move ahead together we look forward to hearing from you through [redacted] If you do not achieve contact please call direct [redacted]

Sincerely

Trevor Smith
B.B., B.A., Grad Dip Edu (Careers) (Teaching), MBA

COMMUNICATION CONTROL ROOM INSIDE ORGANISATIONS
ONLY AVAILABLE THROUGH US TO CONNECT TO THE WORLD
FOR ACCELERATED LEARNING AND MULTI-SKILLING
THAT NO ONE ELSE IN THE WORLD FOR GROWTH

1. Technology & Tools
YouTube, Websites, Mobile Phones
Sales/Profits
Communication Tool

Global Youth Village
Clubs
Multi-Skilling
Accelerated Learning

New Curriculum/Sales/Shared Profits

2. Business Innovation Support Centre
Inside Every Organisation
Business, Schools/Universities,
Homes, Workplaces, Community
Government

Self-funding, Profitable
World Market
Control Centre

New Curriculum/Sales/Shared Profits

3. Programs, Projects
Businesses, Activities

Rewards
Commercial
Sales/Profits Shared

New Curriculum/Sales/Shared Profits

4. Ethical Partnerships

Famous High Achievers
Media
Professional Associations

5. Outcomes
Real Life Interaction

Curriculum and training material that has a purpose, it links to jobs, learning, classroom/training, profits & rewards are shared, links room to real life examples so students, teachers, parents learn immediately by seeing the subject in action

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All Organisations Need This Package For The Changing World – Connecting From The Inside Connecting To The World – It's a World Market Now All workplaces – business, Corporations, education institutions, homes, Governments at all levels, all community organisations, families

---

It Improves Work Practices and Processes through Integrated Management Solutions Process/Program that impacts on performance, increase profitability, workplace and cultural reform, realise full potential

Resume - Trevor Smith

CAREER SUMMARY

Wide experience and an accomplished Manager and Board member in senior Government Foreign affairs and Defence positions and in the private sector as owner Manager of large Hospitality/Catering Company with 40+ operations and 300+ staff turning over $4 million dollars a year, also President of a large secondary College Council for three years.

My roles involved all areas of management, leadership, planning, applying strategic plans, policies and procedures, organizing, leading coordinating ethics, budgeting/finances, staff/employee performance, organizational change, organizational performance, product/service management, training/education, marketing, media relations, systems management, and governance.

Unique Skills

I have unique skills where with my wide business and life skills. I am a lateral thinker, a researcher, an entrepreneur, means I am not restricted in my thinking.

I hold five Degrees - Academic Qualifications

1. **Masters of Business Administration**
   Accounting & Law **Information Management**
   Economics & Finance **Managerial Competencies**
   Corporate Strategy **Marketing & International Marketing**
   Business Analysis **Research**
   Management Research **Human Performance**
   Managing Relationships **Innovation**
2. **Graduate Dip. Education (Teaching)**
3. **Graduate Dip. Edu. (Careers)**
4. **Bachelor of Business -**
   Industrial Relations Industrial Law Communication Skills
   Economics Human Resource Management Legal Studies
   Group Processes and Organisations Strategic Management
5. **Bachelor of Arts (Social Science)**

From: fernangonzalo.dejuanselva[redacted]
Sent: Wednesday, November 07, 2012 12:19 PM
To: casper.sorensen[redacted]
Cc: fernangonzalo.dejuanselva[redacted]
Subject: UNITED STATES OF AMERICA AND CLIMATE CHANGE:SOLAR ENERGY AND SPAIN

Dear Sirs,

First of all, let me introduce myself.

My name is Fernan Gonzalo de Juan Selva and I'm Spaniard.

We represent some Spaniard Solar Companies and I write You for your vision, your principles and above all for your extraordinary labour; in fact and as a matter of trust and interest in your collaboration, I enclose some information and contacts you'll find useful.

Please use it and share it wisely.

www.sec.gov/rules/proposed/s71903/ceres122203.htm

http://www.ceres.org/incr/investor-summit/summit-presentations

www.nrel.gov/analysis/forum/pdfs/2003/summary_03.pdf

http://www.un-energy.org/node/1634

www.photon-magazine.com/ppvx/index.htm

www.icex.es/financiacionmultilateral/portalseminarios/SpanishCompanies.pdf

http://www.sapvia.co.za/about-us/our-members/

Yours Sincerely,

Fernan Gonzalo de Juan Selva
>
> fernangonzalo.dejuanselva[redacted] escrito:
>>
>> Dear Sirs,
>>
>> Let me introduce myself.
>>
>> I´m Fernan Gonzalo de Juan Selva,I'm Spaniard and I´ll collaborate with You 50 Weeks(Remains 0).
>> Let me be direct and clear. You're the main COUNTIES in United States of America (Wyoming) and of
>>course, You're the main Solar Companies in Spain. I´m here because I know your solid principles

>> and extraordinary labour and therefore I´ll trust in you.
>>
>> Use it and share it wisely.
>>
>> www.sec.gov/rules/proposed/s71903/ceres122203.htm
>>
>> www.nrel.gov/analysis/forum/pdfs/2003/summary_03.pdf
>>
>> http://commonhorizon.blogspot.com/
>>
>> Best Regards,
>>
>> Fernan Gonzalo de Juan Selva
>>
>>>>>
>>>>> Dear Sirs,
>>>>>
>>>>> I thank you for Your Participation.
>>>>>
>>>>> You are a selected number of people and a great example for all of us. You represent a
>>>>>community of Principles, Visions and Ideas and therefore I´d like to invite You to this Project.
>>>>>
>>>>> These are our Three Pillars.
>>>>>
>>>>> TRANSPARENCY AND ACCOUNTABILITY
>>>>>
>>>>> All communications will be Public Records and held only by E-mail. Meeting and phone calls with
>>>>> my partner will be transcripted.Transcriptions will be available and only restricted due to
>>>>>personal and confidential information.
>>>>>
>>>>> SOCIAL ECONOMIC FUND
>>>>>
>>>>> Proportional benefits will be destined for the creation of a SOCIAL and ECONOMIC FUND.
>>>>> Objectives and Instruments will be agreed in common. Some of them will be: Solar Research,
>>>>>Development of new ways of Communication and Social Participation and Financial Aid for
>>>>> Solar Projects, particularly in less developed Countries.
>>>>>
>>>>> INTERNATIONAL EXPANSION
>>>>>
>>>>> Global Expansion for Solar Projects will be developed as follows. Each month We will be focused
>>>>>in one country. We will lobby every month all political and economical contacts to expand and
>>>>> consolidate us (SPAIN is an exception. It will be contacted ALL NEXT YEAR. Weekly and Locally
>>>>>).Results will be reported monthly.
>>>>>
>>>>> Finally I enclose some information, ideas and contacts. I wish you will appreciate them.
>>>>>
>>>>> Please,use it,share it and spread it within your colleagues wisely.
>>>>>

>>>>> Best Regards,
>>>>>
>>>>> Fernan Gonzalo de Juan Selva
>>>>> fernangonzalo.dejuanselva [redacted] escrito:
>>>>>>
>>>>>> Dear Sirs,
>>>>>>
>>>>>> Let me introduce myself.
>>>>>>
>>>>>> I´m Fernan Gonzalo de Juan Selva,I'm Spaniard and I´ll collaborate with You 50 Weeks(Remains
>>>>> 1).
>>>>>>
>>>>>> Let me be direct and clear. You're the main MAYORS in United States of America (Wyoming) and
>>>>>> of course, You're the main Solar Companies in Spain. I'm here because I know your solid
>>>>>>principles and extraordinary labour and therefore I´ll trust in you.
>>>>>>
>>>>>> Use it and share it wisely.
>>>>>>
>>>>>> www.sec.gov/rules/proposed/s71903/ceres122203.htm
>>>>>>
>>>>>> www.nrel.gov/analysis/forum/pdfs/2003/summary_03.pdf
>>>>>>
>>>>>> http://commonhorizon.blogspot.com/
>>>>>>
>>>>>> Best Regards,
>>>>>>
>>>>>> Fernan Gonzalo de Juan Selva

THE EU-AFRICA STRATEGIC PARTNERSHIP
- Highlights of the Joint Strategy, Plan of Action and Implementation Mechanisms-

Since the first EU-Africa Summit in Cairo in 2000, Europe, Africa and the world have changed considerably. Yet the ambitions that we set ourselves in Cairo remain to be fulfilled. Time has come to build a joint long-term strategic partnership that is capable of meeting the challenges of the 21st century.

A) The EU-Africa Joint Strategy

I - Objectives and New Approaches

Embraced by a shared vision and a set of common values and principles, the EU-Africa Joint Strategy, to be adopted at the Summit in December, reflects the new nature of this relationship, by establishing:

- a political partnership of equals,
- which will address bilateral issues as well as common global challenges,
- that will promote integrated and "whole of Africa" approaches, and
- will be a broad-based and wide-ranging people-centred partnership.

The Joint Strategy therefore foresees different levels of cooperation (domestic, bilateral and global), in an approach which simultaneously encourages multilateral channels and seeks to handle the multiple dimensions of the relationship in an integrated manner.

II –Policy Priorities

This strategic partnership encompasses four broadly defined clusters of policy priorities, namely:

a. Peace and Security

Although the African Peace and Security Architecture (APSA) is taking shape and the EU has become a political partner that promotes Africa's lead in tackling African crises and conflicts, Africa and EU consider that there are still areas in which both can build on to advance their cooperation, not only to foster peace and security in both continents, but also to address issues of common concern in the global arena, namely:

- increasing the support to African agendas and capacities, specially AU´s efforts to fully operationalize the APSA;
- overcoming the challenge of providing sustainable, predictable and flexible funding for African-led peace support operations;
- strengthen the dialogue and institutional cooperation, i.e., systematically sharing views as well as agreeing and implementing common positions on global issues;
- supporting and promoting the role of civil society and non-state actors in the security agenda.

b. Governance and Human Rights

Placing the promotion of democratic governance and human rights as a central feature of the EU-Africa partnership will mean that both sides will join efforts towards the enhancement of the effectiveness of the multilateral system and the promotion of the values of democracy, governance, rule of law and human rights.

The EU-Africa strategic partnership will therefore facilitate an open, intensive and comprehensive dialogue on all aspects of governance, as well as a more systematic and effective use of the existing instruments, mechanisms and funding modalities. This will also enable both parties to define and agree on common positions on issues of common concern and jointly undertake specific initiatives and actions.

c. Trade and Regional Integration

In this area, the EU and Africa will work towards the improvement of economic governance and investment climate in Africa. The key goals pursued by the EU-Africa dialogue will be: (i) private sector development, supported by foreign investments, to strengthen the supply side of African economies; (ii) the development and strengthening of physical infrastructure networks needed for the movement of persons, goods, information; and (iii) trade integration, which is vital to increase both South-South and North-South trade flows.

At the global level, the EU and Africa will seek to promote global economic governance, as well as to sustain Africa's integration in the world economy, namely by coordinating African and EU positions in the international *fora*.

d. Key Development Issues

The EU and Africa will also focus on making a key contribution to the achievement of the Millennium Development Goals. In order to do so, EU reaffirms its commitment to deliver the additional aid volumes, and African countries commit to further progress in addressing key concerns, and both parties reaffirm their commitment to continue to implement the Paris Declaration on aid effectiveness.

B) Action Plan

The Joint Strategy will be implemented through successive Action Plans that identify the main political priorities for the short-term (2/3 years), plus the policy commitments, programmes and actions that will be needed to achieve them.

The first Action Plan is structured around 8 specific "EU-Africa Partnerships", devoting special attention to a number of selected priority actions on subjects of common interest, which add value to the existing cooperation and political dialogue and that have a positive impact on the daily lives of citizens in both continents:

1. **EU-Africa Partnership on Peace and Security**
   - Enhance dialogue on challenges to peace and security;
   - Full operationalization of the African Peace and Security Architecture;
   - Predictable Funding for African-led Peace Support Operations.

2. **EU-Africa Partnership on Democratic Governance and Human Rights**
   - Enhance dialogue at global level and in international fora;
   - Promote the African Peer Review Mechanism and support the African Charter on Democracy, Elections and Governance;
   - Strengthen cooperation in the area of cultural goods

3. **EU-Africa Partnership on Trade and Regional Integration**
   - Support the African integration agenda;
   - Strengthen African capacities in the area of rules, standards, and quality control;
   - Implement the EU-Africa Infrastructure Partnership.

4. **EU-Africa Partnership on the Millennium Developments Goals**
   - Ensure the finance and policy base for achieving the MDGs;

- Accelerate the achievement of the Food Security Targets of the MDGs ;
- Accelerate the achievement of the Health Targets of the MDGs ;
- Accelerate the achievement of the Education Targets of the MDGs ;

5. **EU-Africa Partnership on Energy**
   - Implement the Energy Partnership to intensify cooperation on energy security and energy access.

6. **EU-Africa Partnership on Climate Change**
   - Build a common agenda on climate change policies and cooperation ;
   - Cooperate to address land degradation and increasing aridity, including the "Green Wall for the Sahara Initiative".

7. **EU-Africa Partnership on Migration, Mobility and Employment**
   - Implement the Declaration of the Tripoli Conference on Migration and Development ;
   - Implement the EU-Africa Plan of Action on Trafficking of Human Beings ;
   - Implement and follow up the 2004 Ouagadougou Declaration and Action Plan on Employment and Poverty Alleviation in Africa.

8. **EU-Africa Partnership on Science, Information Society and Space**
   - Support the development of an inclusive information society in Africa;
   - Support S&T capacity building in Africa and implement Africa's Science and Technology Consolidated Plan of Action;
   - Enhance cooperation on space applications and technology.

The implementation of the Joint Strategy and the initiatives to be developed in the framework of the Action Plan will be supported by existing financial instruments and by EU financial institutions. Where possible these instruments shall be complemented by further contributions by EU Member States, African financial instruments and AU Member States, and an involvement of the African financial institutions.

C) Implementation Mechanism and Institutional Architecture

In order to ensure the implementation of the political commitments, promote the broadest possible ownership of the process, and create strong multilateral links between the two continents, the EU and Africa will establish an appropriate **institutional architecture and implementation mechanism** that reflects the ambitions and drive behind this partnership, namely through:

- more frequent contacts between **African and EU political leaders**, in particular between the Presidents of the EU and AU institutions;
- Complement bi-annual EU-AU **Troika meetings** of Foreign Ministers with sectorial Ministerial meetings as necessary;
- Establish mechanisms for closer cooperation and dialogue between the organs and institutions of the EU and AU, namely pursue the annual meetings between the College of Commissioners of the **European and AU Commissions** and of the 6-monthly **Joint AU-EU Task Force** meetings and initiate a regular dialogue and cooperation between the **Pan-African Parliament (PAP)** and the **European Parliament (EP)**, as well as between the **AU ECOSOCC** and the **EESC** and local authorities;
- Strengthen the representation of the EU in Addis Ababa and of the AU in Brussels;
- Establish a **mapping** of existing European and African civil society networks;

- Create a **web portal** to facilitate civil society organisations (CSOs) consultation ahead of key policy decisions;
- Invite representatives from European and African **civil societies** to express themselves ahead of Ministerial Troika meetings;
- Establish informal **joint expert groups** on all priority actions identified in the Action Plan. These informal Groups will bring together the African, European and international key-actors (including civil society organisations) with the necessary competence and commitment to work on the priority action concerned;
- Draw up an **annual joint report** on the progress and implementation of the Action Plan to be presented to the Ministerial Troika meetings;
- Hold a **third EU Africa Summit** at the end of 2009 in Africa. This Summit will review the results of the first Action Plan and approve the following one.

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Attendee Directory
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Williams, Meredith, Executive Director
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Written Testimony
Prepared for the U.S. Senate Banking
Subcommittee on Securities, Insurance and Investment

October 31, 2007

By
Russell Read
Chief Investment Officer
California Public Employees' Retirement System

Chairman Reed, Ranking Member Allard and members of the Subcommittee, I am pleased to provide the perspective of an institutional investor on the issue of the necessary corporate disclosure of information related to climate change.

The California Public Employees' Retirement System, known as CalPERS, provides pension and health benefits to 1.5 million state, local public agency and school employees, retirees and their families.

A 13-member Board of Administration oversees the management of CalPERS assets, which total more than $250 billion. Our Fund began in 1932, initially investing only in bonds. Over the years, we diversified our assets into four major classes: global equity (public stocks), fixed income, real estate, and – beginning in 1990 – in private equity.

The goal of diversification has always been the same – to balance our portfolio against risk and to add value based on our ability to take advantage of market opportunities.

The CalPERS Board recognizes that the way it deploys investment capital can not only shape the financial future of its investment portfolio, but also the future of our communities, our society, and our environment for decades to come. We also recognize that environmental responsibility and climate risk is a financial issue as well as a health security issue that affects everyone.

Environmental Disclosure and Why It's Important

It is important for the Senate and particularly the Subcommittee to address the issue of environmental disclosure by corporations. Increasing evidence indicates that climate change presents material risks to numerous sectors of the economy and to the financial market place. These risks may include operational, market, liabilities, policy, regulatory, and reputation risk. Accordingly, CalPERS has advocated for the right of shareowners to obtain information on environmental risks and opportunities to make informed investment decisions.

The fundamental principle underlying the Securities and Exchange Commission's disclosure requirements is that a public corporation must fully and fairly disclose all facts about its performance and operations that would be material to a shareowner's investment decision. This disclosure obligation springs from the core requirement of the 1933 and 1934 Acts that investors receive financial and other significant information concerning securities offered for public sale.

Under both Supreme Court and Commission precedent, the existence of significant investor demand for information helps to guide the determination of whether that information is material and hence required to be disclosed. “A fact is material if there is a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of information made available.”[1]

As a long-term investor, CalPERS believes that environmental issues can affect the performance of investment portfolios (to varying degrees across companies, sectors, regions, and asset classes through time.)

CalPERS is also interested in the sustainability of companies that may be threatened by climate change as well as those that can find new opportunities in a carbon-constrained market. Sustainability is potentially undermined by climate change. This is the concern that drives our environmental investment program -- including initiatives seeking transparent reporting of greenhouse gas emissions, the design of corporate measures to reduce those emissions, and clean technology investments.

Addressing climate change is part of our overall corporate governance policy, which says that “to ensure sustainable long-term returns, companies should provide accurate and timely disclosure of environmental risks and opportunities,

through adoption of policies or objectives, such as those associated with climate change."

We want portfolio companies that are well positioned to avoid the financial risks associated with climate change and that can capitalize on new opportunities emerging from the regulation of greenhouse gases, including alternative energy technologies.

But we cannot assess companies' financial viability unless we know their potential exposure to climate change-related risks and potential benefits.

Why Voluntary Environmental Disclosure is Insufficient

CalPERS recognizes that some companies have chosen to include climate risk in voluntary sustainability reports or more general corporate responsibility reports, often filed in response to shareholder activism. However, there are many companies that do not provide voluntary disclosure of their climate risk.

Further, the information that is voluntarily disclosed often lacks the material information required by a reasonable investor to properly assess companies' financial viability. The lack of SEC guidance on or a standardized format for climate risk disclosure has resulted in reports with very little consistency in the format or level of detail of information presented. A recent report found that "while

almost all companies reported on climate change in their sustainability reports, on closer examination companies reported far more on potential opportunities rather than financial risks for their companies from climate change."[2]

Sustainability reports often include additional information on environmental trends and business strategies but they are primarily directed towards an audience of environmental interest groups and the general public, rather than investors. These reports more often acknowledge the science of climate change and discuss efforts to build awareness rather than presenting the specific effects of climate change on their performance and operations.

While sustainability reports provide a solid foundation on which the companies can base the disclosures required under the Commission's existing reporting requirements, they do not provide the information investors require. Reporting must be consistent and must support comparisons among companies. The 10-K report is and will remain the gold standard for reporting information to investors, and investors need to know that material information relating to companies' performance and operations will be in those required reports. Given the significance of climate risks for many corporations' financial position and competitive prospects in a new, carbon-constrained environment, reporting on climate issues is no longer a mere virtue, but a legal obligation and a necessity for investors.

CalPERS Efforts to Improve Environmental Disclosure

CalPERS has worked with CERES, the Investor Network on Climate Risk (INCR) and a coalition of other public pension funds and institutional investors both in the United States and abroad to advocate for improved disclosure of companies' climate risk. Examples of CalPERS' efforts include:

- The Carbon Disclosure Project: CalPERS is a member and signatory – An annual questionnaire is sent to companies on behalf of institutional investors representing $41 trillion of assets under management requesting information on the business implications of climate change and the companies' greenhouse gas emissions.
- The Global Reporting Initiative Sustainability Reporting Guidelines: Reporting mechanism by which companies can disclose their ESG performance. The CalPERS Core Principles of Accountable Corporate Governance also recommend that "Corporations strive to measure, disclose, and be accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development. It is recommended that corporations adopt the Global Reporting Initiative Sustainability Reporting Guidelines to disclose economic, environmental, and social impacts."
- The Global Framework for Climate Risk Disclosure: CalPERS helped draft the Global Framework, which encourages standardized climate risk

disclosure to make it easy for companies to provide information and for investors to analyze and compare companies. The CalPERS Core Principles of Accountable Corporate Governance expressly provide that "[t]o ensure sustainable long-term returns, companies should provide accurate and timely disclosure of environmental risks and opportunities, such as those associated with climate change. Companies should apply the Global Framework for Climate Risk Disclosure when providing such disclosure."

The Global Framework for Climate Risk Disclosure consists of four elements of disclosure that investors require in order to analyze a company's business risks and opportunities resulting from climate change, as well as the company's efforts to address those risks and opportunities. The four elements of disclosure include:

1) Emissions Disclosure: As an important first step in addressing climate risk, companies should disclose their total greenhouse gas emissions. Investors can use this emissions data to help approximate the risk companies may face from future climate change regulations.
2) Strategic Analysis of Climate Risk and Emissions Management: Investors are looking for analysis that identifies companies' future challenges and opportunities associated with climate change. Investors therefore seek management's strategic analysis of climate risk, including a clear and straightforward statement about implications for competitiveness. Where

relevant, the following issues should be addressed: access to resources, the timeframe that applies to the risk, and the firm's plan for meeting any strategic challenges posed by climate risk.

3) Assessment of Physical Risks of Climate Change: Climate Change is beginning to cause an array of physical effects, many of which can have significant implications for companies and their investors. To help investors analyze these risks, investors encourage companies to analyze and disclose material, physical effects that climate change may have on the company's business and its operations, including their supply chain.
4) Analysis of Regulatory Risks: As governments begin to address climate change by adopting new regulations that limit greenhouse gas emissions, companies with direct or indirect emissions may face regulatory risks that could have significant implications. Investors seek to understand these risks and to assess the potential financial impacts of climate change regulations on the company.

All companies have climate risk and opportunity embedded in their operations that will vary across sectors. Regardless, all companies should be required to disclose the four elements highlighted in the Global Framework whether or not they are high emitters of greenhouse gas emissions. For example in the past year, CalPERS was approached by a major global soft drink company to discuss how climate change is affecting the company's water sourcing.

While we encourage all companies to disclose their climate risk, CalPERS has, as part of its corporate governance environmental strategic plan, actively targeted the highest emitting industries including electric utilities. In January 2007, CalPERS and the California State Teachers' Retirement System (CalSTRS) released a CDP-affiliated report on global utilities emissions.

We asked 265 global power companies about commercial risks and opportunities posed by climate change, the impacts of greenhouse gas regulation, physical risks associated with climate change, relevant technologies and innovations, and related management responsibilities. We also asked about energy costs, and emissions in terms of total annual generation, emissions from products and services, reduction programs and targets, and emissions trading arrangements.

Few of the 112 companies that responded to the survey were creating overall economic value once they accounted for the costly environmental impact of their carbon emissions. This is the kind of disclosure that investors need to evaluate not only the earnings of companies, but also costs stemming from greenhouse gas emissions.

Further, the electric utilities industry is heavily exposed to regulatory risks. Absent a federal program to control greenhouse gas emissions, state and local regulation of greenhouse gas emissions has already become a significant force in the United States economy.

In 2007, the Governors of Arizona, California, New Mexico, Oregon, Utah, and Washington, as well as several Canadian provinces and Indian tribes, entered into the Western Climate Initiative to establish a regional greenhouse gas reduction goal and develop market-based strategies to achieve emissions reductions. This is just one of many initiatives being taken at the state and local level to control greenhouse gas emissions.

The lack of federal policy on climate change causes uncertainty that creates risks for both investors and businesses as they engage in long-term strategic planning, asset management, and capital budgeting. To address this uncertainty, CalPERS played a key role in a national effort to seek federal regulations to address climate change. The “Call to Action” campaign, which was organized by CERES and the INCR and included both investors and businesses, held a press conference in Washington, D.C., in mid-March and issued a letter urging the federal government to take three specific actions to address the uncertainty created by the lack of national policy on climate change. The three action items are:

1) Establish a mandatory national policy to contain and reduce national greenhouse gas emissions economy-wide, making the sizable, sensible, long-term cuts that scientists and climate models suggest are urgently needed to avoid the worst and most costly impacts from climate change.

This approach will also enable businesses and investors to make investments with a known long-term planning horizon. Wherever possible, this policy should utilize market-based mechanisms, such as cap-and-trade systems, to create an economy-wide carbon price.

2) Realign incentives and other national policies to achieve climate objectives, including a range of energy and transportation policy measures to encourage deployment of new and existing technologies at the necessary scale. Only governments can create the infrastructure needed to underpin the new clean energy system.
3) Guidance from the Securities and Exchange Commission and other financial regulatory bodies to businesses and investors on what material issues related to climate change companies should disclose in their regular financial reporting, so that investors can assess more accurately the effects of climate risk and opportunity in their portfolios.

With regard to action item 2, CalPERS believes it is a good idea for governments to subsidize infant technologies to achieve lift-off and commercial scale in short order. Currently though we see a problem, at least at the federal level, as subsidies are not provided for alternative fuels or clean technology in general. Rather, the federal government is subsidizing very specific technologies to the comparative detriment of others. For example, corn-based ethanol is subsidized while methane from municipal waste is not subsidized. The narrowness of the current subsidy structure could actually be inhibiting the development of those

clean technologies which could have better long-term viability. To remedy this problem, there should be a broad-based subsidy for alternative and clean energy technologies over conventional and dirty technologies.

Consistent with our request for guidance from the Securities and Exchange Commission in action item 3, CalPERS recently joined several other leading institutional investors to petition the Securities and Exchange Commission to ask it to require publicly-traded companies to assess and fully disclose their financial risks from climate change. Specifically, we are asking the Securities and Exchange Commission to require companies to disclose information:

- On the physical risks associated with climate change – including potential physical damage to facilities.
- About the financial risks stemming from the present or probable regulation of greenhouse gases, and their prospects for new business opportunities by responding to the changing physical and regulatory environment.
- About potential exposure and costs arising from legal proceedings that are related to climate change.

CalPERS Environmental Investment Initiatives

Investment Strategies

The CalPERS Board has been a leader in environmental investing. CalPERS recognizes the financial risks as well as the opportunities created by climate change.

- Public Equity: In November 2005, the CalPERS Board approved the hiring of five investment firms to manage $500 million in stock portfolios that use environmental screens.
- Private Equity: In 2005, CalPERS initiated the Environmental Technology Program – a $200 million program that targets investments in environmental technology solutions that are more efficient and less polluting than existing technologies. In 2007, CalPERS committed an additional $400 million to the program.
- Real Estate: In our core real estate portfolio, the Board has set an energy reduction goal of 20 percent over the next five years. CalPERS also supports green building initiatives and continues to explore investments that fit within the Leadership in Energy & Environmental Design requirements.
- Corporate Governance Environmental Strategic Plan: The objective is to improve environmental data transparency and timely disclosure.
    - Environmental Company Engagement program: CalPERS engages companies in the airline, auto, utilities, and oil and gas industries

that are underperforming relative to their industry peers and lack disclosure on the four elements highlighted in the Global Framework for Climate Risk Disclosure;

- Carbon Disclosure Project: Support the Carbon Disclosure Project through our membership and as a signatory;
- Investor Network on Climate Risk: Participate in the INCR; and
- Support of Environmental Shareowner Resolutions for Improved Disclosure: As a shareowner in many different companies, CalPERS generally supports shareowner resolutions requesting improved environmental disclosure. These resolutions generally suggest that companies assess and report on how they are responding to the business risks and opportunities of climate change or adopt and report on quantitative goals for reducing total greenhouse gas emissions from the company's products and operations.

We appreciate this opportunity to represent institutional investors on what we believe is a very important issue. Improved environmental disclosure is required in order for investors to properly assess the material impact of companies' climate risk and opportunities on their portfolios.

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[1] SEC Staff Accounting Bulletin No. 99, 64 Fed. Reg. 45,150 (Aug. 12, 1999) (quoting TSC Industries v. Northway, Inc., 426 U.S. 438, 449 (1976)).

[2] Global Reporting Initiative & KPMG Global Sustainability Services., Reporting the Business Implications of Climate Change in Sustainability Reports (2007)

ADMINISTRATIVO ante la Sala de lo Contencioso-administrativo del Tribunal Superior de Justicia de Canarias (sede de Las Palmas) a tenor de lo establecido en los artículos 8 y 10 de la ley 29/1998, de 13 de julio, reguladora de la Jurisdicción Contencioso-administrativa, en concordancia con el artículo 109 de la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común.

Todo ello sin perjuicio de cualquier otra acción o recurso que se estimare oportuno interponer.

Lo que se hace público para general conocimiento.

Las Palmas de Gran Canaria, a treinta de septiembre de dos mil nueve.

LA SECRETARIA GENERAL DEL PLENO, Ana María Echeandía Mota.

18.819

Concejalía de Gobierno del Área de Ordenación del Territorio, Vivienda y Desarrollo Sostenible

Dirección General de Energía, Agua y Medio Ambiente

Unidad Administrativa de Medio Ambiente

Secretaría General del Pleno

ANUNCIO

18.718

Por la Secretaría General del Pleno, de conformidad con el artículo 122.5.d), de la Ley 7/1985, de 2 de abril, reguladora de las Bases del Régimen Local, y en cumplimiento de lo dispuesto en el artículo 196.2 del Real Decreto 2568/1986 de 28 de noviembre, por el que se aprueba el Reglamento de Organización, Funcionamiento y Régimen Jurídico de las Entidades Locales, se hace saber que la Comisión de Pleno de Desarrollo Sostenible de fecha 7 de septiembre de 2009, por delegación del Pleno - acuerdo de 26 de junio de 2007 -, ha adoptado el siguiente acuerdo:

"ÁREA DE GOBIERNO DE ORDENACIÓN DEL TERRITORIO, VIVIENDA, MEDIO AMBIENTE Y AGUA

DIRECCIÓN GENERAL DE ENERGÍA, AGUA Y MEDIO AMBIENTE

UNIDAD ADMINISTRATIVA DE MEDIO AMBIENTE

RESOLUCIÓN DE ALEGACIONES Y APROBACIÓN DEFINITIVA DE LA "ORDENANZA MUNICIPAL PARA LA INCORPORACIÓN DE SISTEMAS DE CAPTACIÓN Y APROVECHAMIENTO DE ENERGÍA SOLAR FOTOVOLTAICA".

PRIMERO. RESOLUCIÓN DE ALEGACIONES A LA APROBACIÓN INICIAL DE LA ORDENANZA MUNICIPAL PARA LA INCORPORACIÓN DE SISTEMAS DE CAPTACIÓN Y APROVECHAMIENTO DE ENERGÍA SOLAR FOTOVOLTAICA.

La aceptación de los informes emitidos a las alegaciones formuladas y, en consecuencia, la aceptación de las siguientes:

Alegante	Síntesis de la alegación	Artículos afectados	Motivo de la aceptación
Unidad Administrativa de Medio Ambiente	Modificación de forma y corrección de contenidos	3; 4.3; 11, anexo IV	Errores de redacción y transcripción

Servicio técnico de actividades comerciales e industriales	Modificación del tipo de actividad	Anexo I.2	Modificación de la redacción para adaptar al REBT
Dirección General de Ordenación Urbanística	Modificación de forma y corrección de contenidos	3.a.1; 3.a.4; 3.6; 4.3; 11	Es coherente con la ordenanza y facilita su comprensión.
Servicio Técnico de licencias	Modificación de redacción	Art. 3 a.1, a.2, a.3, a.4, b, b.1 b.2, b.3, b Arts.:.4, 7, 9, 14, 17 Anexos I, I.2	Facilita la ejecución de la ordenanza y evita dudas de aplicación de la misma
ASERPA	Modificación de texto	3.b	Se adapta mejor al PGO

La desestimación de las siguientes:

- Alegante: Servicio de Medio Ambiente

Alegación: Posibilidad de incumplimiento de las dos ordenanzas simultáneamente.

Motivo: Esta resuelto en el Artículo 6

- Alegante: ASERPA

Alegación: Eliminación de la necesidad del certificado de solidez de la edificación.

Motivo: Es necesario por motivos de seguridad.

SEGUNDO. APROBAR, DEFINITIVAMENTE, LA ORDENANZA MUNICIPAL PARA LA INCORPORACIÓN DE SISTEMAS DE CAPTACIÓN Y APROVECHAMIENTO DE ENERGÍA SOLAR FOTOVOLTAICA, siendo el texto íntegro el siguiente:

ORDENANZA MUNICIPAL PARA LA INCORPORACIÓN DE SISTEMAS DE CAPTACIÓN Y APROVECHAMIENTO DE ENERGÍA SOLAR FOTOVOLTAICA

Antecedentes

El elevado crecimiento del consumo energético en el planeta y la dependencia de los combustibles fósiles están provocando numerosos problemas de contaminación atmosférica que afectan a la calidad ambiental y la salud de las zonas urbanas.

Ante esta situación, las administraciones públicas, en todos sus niveles, están abordando importantes iniciativas para impulsar las fuentes de energías renovables, como estrategia para reducir la contaminación atmosférica y el abastecimiento energético.

A nivel nacional, el Ministerio de Ciencia y Tecnología, a través del Instituto para la Diversificación y Ahorro de la Energía (IDAE), ha elaborado el Plan de Fomento de las Energías Renovables, que establece como objetivo, para el año 2010, el cubrir con energías renovables el 12% del consumo de energía primaria.

Consciente del importante papel que habrán de desempeñar las entidades locales, el IDAE, con la colaboración de la Federación Española de Municipios y Provincias (FEMP), esta última a través de la Red Española de Ciudades por el Clima, a la cual pertenece nuestro Municipio, insta a las administraciones locales a incorporar ordenanzas relativas a la utilización de la energía procedente del sol.

Recogiendo este compromiso, y con la firme voluntad de apoyar el uso de la energía solar, el Ayuntamiento de Las Palmas de Gran Canaria, mediante la Agencia Local Gestora de la Energía, ha elaborado la presente

Ordenanza de Captación Solar Fotovoltaica, asumiendo los compromisos adquiridos dentro del Programa IEE (Intelligent Energy Europe) y siguiendo el esquema propuesto por el IDAE, con la colaboración del EREN, y las experiencias de otros ayuntamientos con ordenanzas similares.

Artículo 1. Objeto

El objeto de esta Ordenanza es regular la obligada incorporación de las instalaciones de energía solar fotovoltaica para la generación de electricidad y establecer los requisitos mínimos que han de cumplir dichos sistemas en el término municipal de Las Palmas de Gran Canaria.

Artículo 2. Ámbito de aplicación

1. Las determinaciones de esta Ordenanza son de aplicación a la generación de energía eléctrica a través de paneles solares fotovoltaicos instalados dentro del término municipal de Las Palmas de Gran Canaria, en edificaciones e instalaciones o directamente sobre el suelo.

2. La instalación de paneles solares fotovoltaicos es obligatoria para cualquier consumo eléctrico en los supuestos en que concurran conjuntamente las siguientes circunstancias:

a) Que se realicen nuevas edificaciones, ampliación de edificaciones o construcciones, rehabilitación, reforma integral y cambio de uso en edificios o construcciones existentes.

b) Que el uso de la edificación se corresponda con alguno de los siguientes:

- Residencial en todas sus clases y categorías a partir de 4 viviendas.

- Dotacional de Servicios Públicos.

- Dotacional de la Administración Pública.

- Dotacional de Equipamiento en las categorías: Educativo, Cultural, Salud y Bienestar Social.

- Dotacional Deportivo.

- Terciario en todas sus clases: Hospedaje, Comercial, Oficina, Terciario Recreativo y otros Servicios Terciarios.

- Industrial, Agrícola, Ganadero, clase de Servicios Empresariales y cualquier otro Industrial que comporte el uso de energía eléctrica.

- Cualquier otro uso que implique la utilización de energía eléctrica según el Anexo IV.

3. En cuanto al aprovechamiento de la energía solar, podrá destinarse para su uso en las instalaciones eléctricas interiores (aisladas), o bien inyectarse a la red la electricidad generada a la compañía distribuidora de electricidad (actividad industrial).

4. Todo lo dispuesto en esta Ordenanza es de aplicación a los supuestos señalados, sea su titularidad tanto pública como privada.

Artículo 3. Instalaciones según la tipología del suelo

a) SUELO URBANO

La instalación de paneles solares fotovoltaicos en las edificaciones se ajustará a las siguientes condiciones:

a.1) Cubiertas inclinadas. En edificios ubicados en suelo urbano residencial, podrán situarse paneles de captación en los faldones de cubierta, con la misma inclinación de estos y sin salirse de su plano, armonizando con la composición de la fachada y del resto del edificio. Se determina la integración arquitectónica, quedando limitada su instalación (o implantación) a que las pérdidas de aprovechamiento no superen lo indicado en el Anexo II.

En el caso de los edificios construidos en suelo urbano no residencial, se permitirá la realización de estructuras adosadas para optimizar el aprovechamiento energético, con las limitaciones del Anexo II. Estas estructuras, incluidas las placas fotovoltaicas, no podrán sobrepasar un plano paralelo a la cubierta de 1,20 m y se situarán por debajo de un plano inclinado a 45° de los bordes de forjado, debiendo acreditarse documentalmente que dicha instalación no produce un impacto visual no deseable. En estas cubiertas, se instalará de forma permanente, al menos, una línea de vida, de acero inoxidable, para garantía de seguridad de las personas que realicen el mantenimiento de la instalación.

a.2) Cubiertas planas. Tendrán que situarse por debajo de un plano paralelo a la cubierta, a 1,80 m de distancia, y por debajo de un plano inclinado a 45°

de los antepechos de cubierta exteriores, debiendo acreditarse documentalmente que dicha instalación no produce un impacto visual no deseable. Excepcionalmente, de manera puntual, y siempre que quede garantizada la integración de la instalación (por su posición, retranqueo, ocultación tras elementos existentes en la cubierta, etc.), mediante la aportación de la documentación acreditativa, podrían admitirse alturas superiores, hasta un máximo absoluto de 3,00 m, con una separación mínima del plano de la fachada igual a su altura. Aquellas instalaciones que superen dicha altura se considerarán como nueva planta, por lo que tendrán que cumplir con la normativa urbanística vigente.

Los equipos, sistemas, elementos y montajes de la instalación deberán retranquearse tres metros como mínimo del plano de fachada y no podrán rebasar un plano de 45° trazado en la línea de cornisa. En ningún caso estos elementos superarán la altura de tres metros y cincuenta centímetros.

La instalación de placas o paneles en cubiertas no podrá reducir en modo alguno las condiciones de habitabilidad y funcionalidad de la edificación, por lo que no se podrán cubrir patios o claraboyas que sirvan de ventilación o iluminación a las dependencias del edificio.

En el caso de realizarse instalaciones de paneles solares fotovoltaicos con elementos de captación integrados como parte de la cubierta de edificio (captadores solares integrados, vidrios fotovoltaicos, tejas fotovoltaicas, etc.), podrán ubicarse en cualquier parte de la misma, siempre que se justifique de manera fehaciente y dentro de los parámetros admisibles en esta Ordenanza.

a.3) Fachadas. Solo podrán situarse paneles de captación de energía solar fotovoltaica en las fachadas con la misma inclinación de estas y sin salir de su plano vertical exterior, en armonía con la composición de sus huecos y con el resto del edificio y siempre que en el proyecto se prevea solución constructiva que garantice suficientemente su adecuada integración en la estética del edificio, quedando prohibido de forma expresa el paso visible por fachadas de cualquier tipo de canalizaciones.

a.4) En el caso de los edificios catalogados y los edificios no catalogados incluidos en conjuntos históricos, además de cumplir con la normativa urbanística, el promotor presentará un Estudio de Integración, debiendo dictaminar el órgano municipal competente (Consejo Municipal de Patrimonio) sobre la viabilidad de realización de la instalación.

b) SUELO RÚSTICO

La instalación de paneles solares fotovoltaicos sobre suelo rústico solamente se podrá implantar en los suelos zonificados por el Plan Insular de Ordenación de Gran Canaria (PIO/GC) y clasificados y categorizados en el Plan General de Ordenación de Las Palmas de Gran Canaria, con las condiciones y excepciones contempladas por la legislación vigente en materia de ordenación de los recursos naturales, territorial y urbanística.

Además, la autorización de las instalaciones fotovoltaicas ubicadas dentro de estas zonas estará ligada a las construcciones y/o instalaciones permitidas en el planeamiento insular y municipal.

La instalación de los paneles solares fotovoltaicos en este tipo de suelo deberá ajustarse a las siguientes condiciones:

b.1) El porcentaje total de suelo destinado a la instalación será el fijado en la legislación vigente en materia de ordenación de los recursos naturales, territorial y urbanística.

b.2) Salvo en aquellos casos en que se regule de forma expresa, cualquier instalación deberá retranquearse un mínimo de 5 m de los linderos de parcela. Además, los centros de transformación y canalizaciones de todo tipo habrán de quedar enterrados, con los elementos vistos convenientemente tratados para su adecuada integración en el entorno.

b.3) Será preceptiva, para cualquier instalación, la correspondiente Calificación Territorial, conforme a lo establecido por la legislación vigente en materia de ordenación de los recursos naturales, territorial y urbanística.

c) SUELO URBANIZABLE

La instalación de paneles solares fotovoltaicos solo será permitida en los términos establecidos en el artículo 61 del Texto Refundido de las Leyes de Ordenación del Territorio de Canarias y de Espacios Naturales de Canarias, aprobado por Decreto Legislativo 1/2000, de 8 de mayo.

Artículo 4. Garantía del cumplimiento de esta Ordenanza

1. Las condiciones de diseño y cálculo de las instalaciones de energía solar fotovoltaica deberán quedar suficientemente justificadas en los proyectos técnicos necesarios para la obtención de las licencias correspondientes mediante la utilización de procedimientos de reconocida solvencia.

La documentación mínima que se ha de entregar es la que figura en el Anexo I.

2. El proyecto de ejecución definirá con todo detalle la instalación y servirá de base para el otorgamiento de las licencias de obras y de actividad correspondientes.

3. Al finalizar las obras, y previo a la puesta en funcionamiento de la instalación y el otorgamiento de la licencia de primera ocupación (uso residencial) o de actividad (restantes usos), deberá presentarse un certificado, emitido por un técnico competente para ello, acreditativo de que la instalación realizada resulta conforme al proyecto de ejecución aprobado y se ha efectuado según lo establecido en el REBT, Decreto 161/2006 del Gobierno de Canarias y sus anexos, y en el que declare la conformidad con lo construido a las licencias otorgadas.

Artículo 5. Responsables del cumplimiento de esta Ordenanza

Son responsables del cumplimiento de las prescripciones de esta Ordenanza el promotor de la instalación y/o el titular de la actividad, así como el técnico titulado director de la instalación.

Artículo 6. Requisitos de las instalaciones

1. Con el objeto de obtener el máximo aprovechamiento energético en las instalaciones fotovoltaicas, siempre que sea posible, debe proyectarse el sistema de captación orientado al sur geográfico e inclinado con respecto a la horizontal, con desviaciones que supongan unas pérdidas inferiores a las descritas en el Anexo II en función de su tipología.

2. Las instalaciones solares fotovoltaicas deberán disponer de la potencia pico mínima descrita en el Anexo IV.

2.1. Se podrá reducir justificadamente este aporte solar indicado en el Anexo IV, aunque tratando de aproximarse lo máximo posible a lo allí establecido, en los siguientes casos:

a) Cuando el edificio no cuente con suficiente acceso al sol por barreras externas al mismo.

b) Para el caso de edificios en los que se pretenda realizar obras de reestructuración general o total, cuando existan graves limitaciones, no subsanables, derivadas de la configuración previa del edificio existente o de la normativa urbanística que le sea de aplicación.

c) Cuando no se disponga, en el conjunto del edificio y/o parcela, de la superficie necesaria para la instalación de los elementos de captación. En este caso, deberá aprovecharse la máxima superficie disponible.

d) Para el caso de edificaciones antiguas aisladas y/o catalogadas en las normas urbanísticas que carezcan de suministro energético, y cuya finalidad última sea la de vivienda.

2.2. Procede eximir de la obligatoria instalación de captación solar en los siguientes casos:

a) Cuando la obligación impuesta en aplicación de lo dispuesto en esta Ordenanza hubiera de recaer sobre bienes integrantes de Edificios de Especial Protección, incluidos en el Catálogo de Patrimonio de las normas urbanísticas.

b) Cuando, por motivos de superficie útil disponible, no puedan instalarse las dos tipologías de sistemas solares (térmica y fotovoltaica), se priorizará la instalación del sistema solar térmico, justificándose debidamente la imposibilidad de instalación del sistema solar fotovoltaico.

3. Cuando sean de aplicación las reducciones o causas de exención establecidas en los apartados 2.1 y 2.2 de este artículo, tal circunstancia deberá ser objeto de justificación en los correspondientes proyectos técnicos.

Artículo 7. Normativa aplicable

Las instalaciones de energía solar fotovoltaica deberán cumplir la legislación sectorial vigente en cada momento, y les resulta especialmente de aplicación:

- Real Decreto 1663/2000, de 29 de septiembre, sobre conexión de instalaciones fotovoltaicas a la red de baja tensión.

- UNE-EN 61215: 1997 "Módulos fotovoltaicos (FV) de silicio cristalino para aplicación terrestre. Cualificación del diseño y aprobación tipo".

- UNE-EN 61646: 1997 "Módulos fotovoltaicos (FV) de lámina delgada para aplicación terrestre. Cualificación del diseño y aprobación tipo".

- Ley 54/1997, de 27 de noviembre, del Sector Eléctrico.

- Real Decreto 661/2007, de 25 de mayo, por el que se regula la actividad de producción de energía eléctrica en régimen especial.

- Real Decreto 1578/2008, de 26 de septiembre, de retribución de la actividad de producción de energía eléctrica mediante tecnología solar fotovoltaica para instalaciones posteriores a la fecha límite de mantenimiento de la retribución del Real Decreto 661/2007, de 25 de mayo, para dicha tecnología.

- Real Decreto 1955/2000, de 1 de diciembre, por el que se regulan las actividades de transporte, distribución, comercialización, suministro y procedimiento de autorización de instalaciones de energía eléctrica.

- Decreto 161/2006, de 8 de noviembre, por el que se regulan la autorización, conexión y mantenimiento de las instalaciones eléctricas en el ámbito de la Comunidad Autónoma de Canarias.

- Resolución de 31 de mayo de 2001, de la Dirección General de Política Energética y Minas, por la que se establecen modelo de contrato tipo y modelo de factura para instalaciones solares fotovoltaicas conectadas a la red de baja tensión.

- Real Decreto 841/2002, de 2 agosto, por el que se regula para las instalaciones de producción de energía eléctrica en régimen especial su incentivación en la participación en el mercado de producción, determinadas obligaciones de información de sus previsiones de producción, y la adquisición por los comercializadores de su energía eléctrica producida.

- Real Decreto 842/2002, de 2 de agosto, por el que se aprueba el Reglamento electrotécnico para baja tensión.

- Real Decreto 1433/2002, de 27 de diciembre, por el que se establecen los requisitos de medida en baja tensión de consumidores y centrales de producción en Régimen Especial.

- El Código Técnico de la Edificación, siempre que se refiera a campos que no estén recogidos en la presente Ordenanza. En caso de discrepancia entre la Ordenanza y el Código Técnico de la Edificación, se adoptará el criterio o el valor más exigente de ambos, entendiéndose la Ordenanza como norma supletoria del Código Técnico.

Artículo 8. Sistema adoptado

1. El sistema que se instale constará del subsistema de captación, mediante módulos fotovoltaicos.

2. En las instalaciones solo podrán emplearse módulos fotovoltaicos que cumplan las especificaciones UNE-EN 61215 para módulos de silicio cristalino o UNE-EN 61646 para los módulos de capa delgada. En el proyecto se deberán aportar las características de los elementos que las componen, incluyendo los certificados correspondientes.

Cuando los módulos fotovoltaicos que integren la instalación sean de modelos distintos, el diseño debe garantizar totalmente la compatibilidad entre ellos y la ausencia de efectos negativos en la instalación por dicha causa.

Los marcos laterales, si existen, serán de un material que garantice la durabilidad y rigidez de los mismos; entre otros, citamos el aluminio anodizado o el acero inoxidable.

Por motivos de seguridad, y para facilitar el mantenimiento y reparación del generador, se instalarán los elementos necesarios (fusibles, interruptores, etc.) para la desconexión, de forma independiente y en ambos terminales, de cada una de las ramas del resto del generador.

3. En el caso de optar por una instalación fotovoltaica del tipo "aislada de red", deberán incluirse los subsistemas de control y regulación, almacenamiento, adecuación de la energía eléctrica generada a las

cargas de consumo y de seguridad y conexión a los circuitos eléctricos destinatarios de la electricidad generada.

4. En el caso de optar por una instalación fotovoltaica del tipo "conectada a la red", deberán incluirse los subsistemas de control y regulación, inversión y seguridad e inyección a la red eléctrica destinataria de la electricidad generada para su venta.

5. La estructura soporte cumplirá las siguientes condiciones:

Ha de resistir, con los módulos instalados, las sobrecargas de viento y nieve, de acuerdo con lo indicado en el Código Técnico de la Edificación.

El diseño y la construcción de la estructura y el sistema de fijación de módulos permitirán las necesarias dilataciones térmicas, sin transmitir cargas que puedan afectar a la integridad de los módulos, siguiendo las indicaciones del fabricante.

Los puntos de sujeción para el módulo fotovoltaico serán suficientes en número, teniendo en cuenta el área de apoyo y posición relativa, de forma que no se produzcan flexiones en los módulos superiores a las permitidas por el fabricante y los métodos homologados para el modelo de módulo.

El diseño de la estructura se realizará para la orientación y el ángulo de inclinación especificado para el generador fotovoltaico, teniendo en cuenta la facilidad de montaje y desmontaje, y la posible necesidad de sustituciones de elementos.

La estructura se protegerá superficialmente contra la acción de los agentes ambientales.

La realización de taladros en la estructura se llevará a cabo antes de proceder, en su caso, al galvanizado o protección de la estructura, excepto en los casos en que, por su relativamente pequeño espesor, se produzca la protección galvánica del material.

La tornillería será realizada en acero inoxidable, cumpliendo con lo estipulado en el Código Técnico de la Edificación.

En el caso de ser la estructura galvanizada se admitirán tornillos galvanizados, exceptuando la sujeción de los módulos a la misma, que será de acero inoxidable.

Los topes de sujeción de módulos y la propia estructura no arrojarán sombra sobre los módulos.

En el caso de instalaciones integradas en cubierta que hagan las veces de cubierta del edificio, el diseño de la estructura y la estanqueidad entre los módulos se ajustarán a las exigencias del Código Técnico de la Edificación y a las técnicas usuales en la construcción de cubiertas.

La estructura soporte será calculada conforme a lo indicado en el Código Técnico de la Edificación, teniendo en cuenta las acciones que tengan lugar sobre la misma, entre otras el peso propio, el viento, la sobrecarga de nieve, etc.

Si es de tipo galvanizada en caliente, cumplirá las normas UNE 37-501 y UNE 37-508, con un espesor mínimo de galvanizado de 80 micras para eliminar las necesidades de mantenimiento y prolongar su vida útil.

Si se pudiese crear par galvánico en la unión entre el módulo fotovoltaico y la estructura, se intercalará algún tipo de material que impida la posibilidad del citado par galvánico, tales como materiales aislantes o bimetálicos.

También debe estar eléctricamente unida a una toma de tierra que cumpla con las especificaciones del Reglamento de Baja Tensión, asegurar un buen contacto eléctrico entre el marco del módulo y la tierra, para permitir la protección de las personas frente a posibles pérdidas de aislamiento en el generador, y favorecer la integración estética del generador en el medio en el que funciona. Se tendrá especial cuidado en lo que respecta a la creación de pares galvánicos, utilizándose los terminales adecuados.

Artículo 9. Instalación de tuberías y otras canalizaciones

En las partes comunes de los edificios, y en forma de patios de instalaciones, se situarán los montantes necesarios para alojar, de forma ordenada y fácilmente accesible para las operaciones de mantenimiento y

reparación, las canalizaciones eléctricas que correspondan. Las instalaciones de tubería, canalizaciones eléctricas u otras no podrán transcurrir por las fachadas del edificio.

Artículo 10. Sistema de medida y control

Todas las instalaciones solares fotovoltaicas que se ejecuten en cumplimiento de esta Ordenanza dispondrán de los aparatos adecuados de medida de la energía eléctrica, de la intensidad y de la tensión que permitan comprobar el funcionamiento del sistema.

Artículo 11. Protección de la biodiversidad y el paisaje

Las instalaciones reguladas en esta Ordenanza deberán cumplir la normativa urbanística vigente en orden a impedir la desfiguración de la perspectiva del paisaje urbano y la rotura de la armonía paisajística o arquitectónica, así como a preservar y proteger los edificios, conjuntos, entornos y paisajes urbanos y rurales incluidos en los catálogos o planes de protección del patrimonio.

Asimismo, se tendrá en cuenta que estas instalaciones no produzcan reflejos frecuentes que puedan molestar a personas residentes en edificios colindantes, vías de comunicación, rutas aéreas y zonas de especial interés paisajístico.

Cualquier otra solución para la implantación de paneles solares fotovoltaicos distinta de las anteriormente señaladas en el artículo 3 no podrá resultar antiestética, inconveniente o lesiva para la imagen del Municipio, por lo que el Ayuntamiento podrá denegar o condicionar cualquier actuación que incumpla el marco de aplicación de lo dispuesto en el planeamiento urbanístico del municipio de Las Palmas de Gran Canaria y la presente Ordenanza.

En el caso de cese de actividad, deberán retirarse todos los elementos afectos, retornando la edificación o la parcela a su estado original.

Artículo 12. Obligaciones de comprobación y mantenimiento. Deber de conservación

1. La instalación deberá ser conservada en buen estado de seguridad y salubridad por el propietario de la instalación y/o el titular de la actividad.

El deber de conservación de la instalación implica su mantenimiento, mediante la realización de las mediciones periódicas y reparaciones que sean precisas, para asegurar el cumplimiento de los siguientes fines:

a) Preservar las condiciones con arreglo a las cuales hayan sido autorizadas las citadas instalaciones.

b) Preservar las condiciones de funcionalidad, seguridad, salubridad y ornato público, incluidos los elementos de soporte de las mismas.

2. Todas las instalaciones que se incorporen en cumplimiento de esta Ordenanza deben disponer de los equipos adecuados de medida de energía y control que permitan comprobar el funcionamiento del sistema.

3. Serán responsables del mantenimiento de la instalación sus propietarios o titulares, con independencia de que su utilización sea individual o colectiva.

4. Asimismo, las instalaciones de energía solar habrán de cumplir los parámetros de mantenimiento recogidos en el Anexo III.

Artículo 13. Empresas instaladoras

Las instalaciones habrán de ser realizadas por empresas instaladoras conforme a lo previsto en la normativa sectorial de aplicación, y solo podrán emplearse elementos homologados por una cantidad debidamente autorizada. En el proyecto de instalación deberán siempre aportarse las características de los elementos que la componen.

Artículo 14. Derecho de soleamiento

1. La existencia de estas instalaciones no creará derechos ni condicionará la modificación o desarrollo del planeamiento urbanístico vigente a partir de la entrada en vigor de esta Ordenanza.

2. El planeamiento de desarrollo de las normas urbanísticas deberá garantizar, a través de sus determinaciones (ordenación, condiciones de edificación, etc.), la posibilidad de implantar las instalaciones reguladas en esta Ordenanza en condiciones óptimas.

Artículo 15. Inspección y órdenes de ejecución

1. Los servicios técnicos municipales podrán realizar inspecciones en las instalaciones para comprobar el cumplimiento de las previsiones de esta Ordenanza.

2. Una vez comprobada la existencia de anomalías en las instalaciones o en su mantenimiento, el órgano municipal correspondiente practicará los requerimientos que tengan lugar, y en su caso, dictará las órdenes de ejecución que correspondan para asegurar el cumplimiento de esta Ordenanza.

Artículo 16. Protección de la legalidad

Las acciones u omisiones que contravengan lo dispuesto en la presente Ordenanza podrán dar lugar a la adopción de las medidas que a continuación se establecen, las cuales serán impuestas por el órgano competente del Ayuntamiento y mediante el procedimiento previsto para cada una de ellas:

a) La restitución del orden urbanístico vulnerado y la reposición de la realidad física alterada, que se regirá por lo establecido en el Capítulo V del Título V del Texto Refundido de las Leyes de Ordenación del Territorio de Canarias y de Espacios Naturales de Canarias, aprobado por Decreto Legislativo 1/2000, de 8 de mayo (TRLOTC y ENC'00, en adelante).

b) La imposición de sanciones a los responsables, que se ejercerá observando el procedimiento establecido en la legislación general del procedimiento administrativo común (Ley 30/1992, de 26 de noviembre) y el Reglamento del Procedimiento para el Ejercicio de la Potestad Sancionadora, aprobado por Real Decreto 1398/1993, de 4 de agosto.

Artículo 17. Régimen jurídico sancionador

El incumplimiento de las prescripciones contenidas en la presente Ordenanza se considerará infracción susceptible de sanción, de conformidad con lo regulado en el artículo 187 del TRLOTC y ENC'00.

La calificación de las infracciones y de las sanciones que quepa imponer se regirá por lo previsto en los artículos 202 y 203 del TRLOTC y ENC'00. No obstante, a esta tipología básica de infracciones y sanciones se añaden las siguientes:

• Constituyen, asimismo, infracciones muy graves:

- No instalar el sistema de captación de energía solar fotovoltaica cuando sea obligatorio de acuerdo con lo que prevé esta Ordenanza.

• Constituyen, asimismo, infracciones graves las siguientes:

- La realización incompleta o insuficiente de las instalaciones de captación de energía solar fotovoltaica.

- La realización de obras, la manipulación de las instalaciones o la falta de mantenimiento cuando supongan una disminución de la eficiencia de las instalaciones por debajo de lo que es exigible.

• Constituyen, asimismo, infracciones leves las siguientes:

- La ejecución de obras o instalaciones que lleven aparejada una reducción del aprovechamiento energético óptimo de las mismas, cuando no se ejecuten en desarrollo de las previsiones urbanísticas del planeamiento.

En cuanto a la determinación de las consecuencias legales de las infracciones, de las personas responsables, de la competencia para incoar, instruir y resolver el procedimiento sancionador, de las reglas para la aplicación de las sanciones y de la graduación de las mismas, se estará a lo dispuesto en el Capítulo I del Título VI del TRLOTC y ENC'00.

Artículo 18. Carácter independiente de las sanciones

Las multas que se impongan a los diferentes sujetos por una misma infracción tendrán carácter independiente.

Artículo 19. Prescripción de infracciones y sanciones

1. Las infracciones muy graves prescribirán a los cuatro años, las graves a los dos años y las leves al año.

2. Las sanciones impuestas por faltas muy graves prescriben a los tres años, las impuestas por faltas graves a los dos años y las impuestas por faltas leves al año.

3. Los plazos de prescripción comenzarán a contarse conforme a lo regulado en el artículo 201 del TRLOTC y ENC'00, y se interrumpirán y reanudarán según lo dispuesto en la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común.

DISPOSICIÓN FINAL

La presente Ordenanza entrará en vigor una vez que quede aprobada definitivamente por el Pleno Corporativo y ultimada la tramitación legal prevista en los artículos 49 y 70 de la Ley 7/1985, de 2 de abril, reguladora de las Bases del Régimen Local, continuando su vigencia hasta tanto se acuerde su modificación o derogación.

ANEXO I

DOCUMENTACIÓN EXIGIDA PARA LA TRAMITACIÓN DE LAS LICENCIAS

1. Instalación de paneles solares para la generación de energía para sistemas aislados.

- Proyecto redactado por un técnico competente y visado por el Colegio Oficial correspondiente, que podrá ser incluido como un apartado específico del mismo en el proyecto de obra de la edificación o constituir uno independiente.

- Certificado de Solidez de la edificación, suscrito por un técnico competente y visado por el Colegio Oficial correspondiente, cuando se instalen en edificaciones existentes.

- Solicitud de la preceptiva licencia urbanística, según modelo oficial, a la que se adjuntarán los documentos detallados en la misma que le sean de aplicación.

- Contrato de mantenimiento establecido en el Anexo III.

2. Instalación de paneles solares para la generación de energía como actividad industrial.

- Proyecto redactado por un técnico competente y visado por el Colegio Oficial correspondiente, que podrá ser incluido como un apartado específico del mismo en el proyecto de obra de la edificación o constituir uno independiente.

- Certificado de Solidez de la edificación, suscrito por un técnico competente y visado por el Colegio Oficial correspondiente.

- En el supuesto de que la potencia que se vaya a instalar sea menor de 10 kWp, además de la solicitud de licencia urbanística, se solicitará licencia de actividad no clasificada, siendo exigible solamente una Memoria descriptiva de la instalación junto a la solicitud. Si la potencia que se va a instalar es igual o superior a 10 kWp, además de la solicitud de licencia urbanística, se solicitará licencia de actividad clasificada, requiriéndose en este caso el proyecto completo junto con la solicitud.

- Contrato de mantenimiento establecido en el Anexo III.

3. Instalación de paneles solares para la generación de energía que vayan a ser ubicados en suelo rústico.

- Calificación Territorial otorgada por el Cabildo de Gran Canaria que autorice la instalación pretendida.

- Proyecto redactado por un técnico competente y visado por el Colegio Oficial correspondiente.

- En el supuesto de que la potencia que se vaya a instalar sea menor de 10 kWp, solicitud de licencia de actividad no clasificada. Si la potencia que se va a instalar es igual o superior a 10 kWp, solicitud de licencia de actividad clasificada. A la solicitud se adjuntarán los documentos detallados en la misma que le sean de aplicación.

- Solicitud de la preceptiva licencia urbanística, según modelo oficial, a la que se adjuntarán los documentos detallados en la misma que le sean de aplicación.

- Contrato de mantenimiento establecido en el Anexo III.

- Estudio de Impacto Ambiental, si procede.

En el supuesto de que la potencia que se vaya a instalar sea inferior a 10 kWp, solo se exigirá una Memoria descriptiva de la instalación. En el caso de que sea superior a esa medida, se requerirá el proyecto completo.

DOCUMENTACIÓN REFERIDA AL PROYECTO

Memoria:

1. Datos Generales.

- Denominación social y NIF, dirección completa y representación legal.

- Dirección, clasificación y calificación urbanística del inmueble que ocupa la instalación según el planeamiento urbanístico vigente.

2. Descripción de la Instalación.

- Descripción general de la instalación, especificando el tipo de instalación y los principales elementos que la componen, con sus características más significativas.

3. Certificado de Solidez Técnica.

- Certificado acreditativo de la solidez de la instalación y de la estabilidad de la estructura soporte, firmado y visado por un técnico competente.

4. Estudio de Seguridad y Salud.

5. Resumen del Presupuesto.

Planos:

1. Plano de Situación.

- Plano de situación de la instalación, sobre cartografía del Plan General Municipal de Ordenación representada a una escala mínima 1:2000, con cuadrícula incorporada. En el plano se ha de destacar la parcela objeto de la instalación y se deben representar las infraestructuras o elementos que tengan incidencia sobre su evaluación ambiental.

2. Plano de Emplazamiento.

- Plano a escala adecuada (mínima 1:500), en el que figure el emplazamiento de la instalación en relación con su entorno inmediato. En el mismo, deberán representarse igualmente aquellas infraestructuras o elementos que tengan incidencia sobre su evaluación ambiental.

3. Planos de la implantación de la Instalación.

- Planos de planta (escala mínima 1:200), alzados, secciones completas perpendiculares a fachadas y a medianeras con vistas permanentes, y detalles de la instalación, en los que se definirán las dimensiones y límites de la cubierta o parcela, la ubicación, dimensiones, retranqueos y geometría de los elementos que componen la instalación, así como de los elementos de protección y la solución justificativa de integración de la instalación.

- Planos de planta, alzado, secciones tipo y detalles de cada uno de los elementos accesorios que componen la instalación (soportes, conducciones y cableado, etc.), incluyendo los de protección.

- Planos constructivos de la estructura de sustentación de la instalación y de las fijaciones, así como del reparto de cargas.

Estudio de Integración.

Se aportará la documentación gráfica y escrita, fotográfica e infográfica, redactada por un técnico competente en la materia (intervenciones en edificios catalogados o entornos de protección), con la calidad suficiente y necesaria para definir y presentar los datos, parámetros y características, tanto de la instalación como del entorno, de acuerdo con lo dispuesto en la presente Ordenanza. La documentación infográfica deberá contener una simulación del impacto visual desde las perspectivas más desfavorables, incluido el que sería observable desde las vías públicas.

Se estudiarán y seleccionarán medidas de adaptación e integración más adecuadas a las circunstancias concretas de la instalación y de su entorno, teniendo en cuenta la especial sensibilidad en la aproximación a la intervención sobre el patrimonio histórico-artístico y arquitectónico, así como las especificidades características de edificios catalogados o entornos de protección, tanto en suelo urbano y urbanizable como en suelo rústico.

Las propuestas realizadas en edificios catalogados y en entornos de protección o conjuntos protegidos serán sometidas a aprobación del Consejo Municipal de Patrimonio Histórico, conforme establece su Reglamento.

ANEXO II

PÉRDIDAS.

Tabla de pérdidas límite

Caso	Orientación e inclinación	Sombras	Total
General	10%	10%	15%
Superposición	20%	15%	30%
Integración arquitectónica	40%	20%	50%

En la tabla anterior se contemplan tres casos: general, superposición de módulos e integración arquitectónica. Se entiende que existe integración arquitectónica cuando los módulos cumplen una doble función energética y arquitectónica y, además, sustituyen a elementos constructivos convencionales. Se considera que existe superposición arquitectónica cuando la colocación de los captadores se realiza paralela a la envolvente del edificio, no aceptándose en este concepto la disposición de total horizontalidad con el fin de favorecer la autolimpieza de los módulos. Una regla fundamental que debe seguirse para conseguir la integración o superposición de las instalaciones solares es la de mantener, dentro de lo posible, la alineación con los ejes principales de la edificación.

En todos los casos se han de cumplir las tres condiciones: pérdidas por orientación e inclinación, pérdidas por sombreado y pérdidas totales inferiores a los límites estipulados respecto a los valores óptimos. Los ángulos de inclinación permitidos serán aquellos que cumplan con los valores límites establecidos en la tabla anterior.

Cálculo de las pérdidas por orientación e inclinación y por sombras

El cálculo de las pérdidas por orientación e inclinación y por sombras se realiza según el Código Técnico de la Edificación especificado en el Documento Básico HE Ahorro de Energía, HE 5, apartados 3.3 y 3.4.

ANEXO III

MANTENIMIENTO

Desde el momento de la puesta en marcha de la instalación y la entrega provisional, el titular ha de llevar a cabo las funciones de mantenimiento, sin que estas puedan ser sustituidas por la garantía de la empresa instaladora.

Con el fin de garantizar la realización del mantenimiento, se habrá de presentar un contrato de mantenimiento de la instalación solar.

El mantenimiento deberá ser efectuado por empresas de mantenimiento o instaladores debidamente autorizados por la Administración correspondiente.

El mantenimiento deberá incluir un plan de vigilancia y un plan de mantenimiento preventivo:

1. Plan de vigilancia

El plan de vigilancia se refiere, básicamente, a las actuaciones que permiten asegurar que los valores operacionales de la instalación continúen siendo correctos. Es un plan de observación de los parámetros funcionales principales para verificar el correcto funcionamiento de la instalación. Tendrá que ajustarse a lo descrito en las siguientes tablas:

Elemento de la instalación	Operación	Frecuencia (meses)
MÓDULO FOTOVOLTAICO		
Módulos fotovoltaicos	Inspección visual de condensaciones en las horas centrales del día.	6
Conexiones	Inspección visual.	6
	Limpieza de módulos con agua y productos adecuados	6
Estructura	Inspección visual de degradación, índices de corrosión.	6
ACUMULADORES		
Equipos electrónicos	Comprobación del estado de carga y densidad de electrolito.	6
	Inspección visual de funcionamiento	6
SISTEMAS DE SEGURIDAD		
Sistemas de seguridad	Inspección visual de funcionamiento	6

2. Plan de mantenimiento preventivo

Son operaciones de inspección visual, para verificar las actuaciones, que, aplicadas a la instalación, habrán de mantener entre los límites aceptables las condiciones de funcionamiento, prestaciones, protección y durabilidad de la misma.

El mantenimiento implicará, como mínimo, una revisión anual de la instalación para instalaciones solares fotovoltaicas aisladas; la revisión se realizará anualmente para instalaciones con una potencia pico inferior a 750 Wp, y semestralmente en caso contrario. En conexiones a red, la potencia indicada será de 5 kWp.

El plan de mantenimiento lo habrá de efectuar personal técnico especializado. La instalación tendrá un libro de mantenimiento en el que se reflejen todas las operaciones llevadas a cabo con el mantenimiento correcto.

El mantenimiento habrá de incluir todas las operaciones de mantenimiento y sustitución de elementos fungibles o desgastados por el uso, necesarios para asegurar que el sistema funcione correctamente durante su vida útil.

De forma detallada, se describen a continuación las operaciones de mantenimiento que habrán de realizarse en las instalaciones de energía solar, la periodicidad mínima establecida (en meses) y las observaciones en relación con las prevenciones. No se incluyen los trabajos propios del mantenimiento del sistema auxiliar.

En la siguiente tabla aparecen las siguientes abreviaturas:

- (V): Inspección visual

- (F): Comprobación de funcionamiento

ANEXO IV

Elemento de la instalación	Operación	Tipo de actuación	Frecuencia (meses)
A. MÓDULOS FOTOVOLTAICOS			
Módulos fotovoltaicos	Diferencias sobre original.	(V)	6
	Limpieza.	(V)	6
	Presencia de daños que afecten a la seguridad.	(V)	12
Carcasa	Deformación, oscilaciones y estado de la conexión a tierra.	(V)	12
Conexiones	Reapriete de bornes y conexiones y estado de diodos de protección.	(V)	12
Estructura	Degradación, indicios de corrosión y apriete de tornillos.	(V)	12
B. ACUMULADORES (BATERÍAS)			
Batería	Densidad del líquido electrolítico.	(F)	6
	Nivel de líquido electrolítico.	(V)	24
	Terminales, su conexión y engrase.	(V)	12
C. EQUIPOS ELECTRÓNICOS			
Reguladores	Funcionamiento de los indicadores e intensidad y caídas de tensión entre terminales.	(F)	12
	Cableado y conexión de terminales.	(V)	12
Inversores	Rango de tensión, estado de indicadores y alarmas.	(F)	12
	Terminales, su conexión y engrase.	(V)	12
Contadores	Funcionamiento y tolerancia de la medida.	(F)	12
	Conexión de terminales.	(V)	12
	Conexión remota, almacenamiento de registros, regulación y tolerancia de la medida.	(F)	6
Sistemas de monitorización	Conexión de terminales.	(V)	12
D. CABLES, INTERRUPTORES Y PROTECCIONES			
Cableado	Estanqueidad, protección y conexión de terminales, empalmes y pletinas.	(F)	12
	Caídas de tensión solo CC.	(F)	12
Interruptores	Funcionamiento y conexión de terminales.	(F)	12
Protecciones	Funcionamiento y actuación de los elementos de seguridad y protecciones: fusibles, tomas de tierra, interruptores de seguridad.	(F)	12

POTENCIAS ELÉCTRICAS MÍNIMAS PARA INSTALACIÓN DE SISTEMAS FOTOVOLTAICOS

Para el caso de instalaciones solares fotovoltaicas, las potencias eléctricas mínimas que se deberán instalar en cada uno de los siguientes edificios serán las expresadas en las siguientes tablas:

	(Ud)	eléctrica (W/Ud)
Viviendas plurifamiliares	4-20	175
	21-40	+ 150 W por vivienda
	41-80	+ 125 W por vivienda
	81-160	+ 75 W por vivienda

Edificio	Fracción(m2)	Potencia eléctrica (W/m2)
Dotacional Servicios Públicos	0-500	10
Dotacional de la Administración Pública	501-1000	+ 9 W/m^2
	1001-2000	+ 8 W/m^2
Dotacional de Equipamiento en las Categorías: Educativo, Cultural, Salud y Bienestar Social	2001-5000	+ 7 W/m^2
	5001-10000	+ 6 W/m^2
	Más de 10000	+ 5 W/m^2
Clínicas	500-1000	+ 7 W/m^2
Comercios	1001-2000	+ 6 W/m^2
Espectáculos y/o Reunión	Más de 2000	+ 5 W/m^2
Recreativo o de Ocio		
Industrial, clase de Servicios Empresariales		
Oficinas	750-1000	+ 7 W/m^2
	1001-2000	+ 6 W/m^2
	Más de 2000	+ 5 W/m^2
Otros Servicios Terciarios	750-1500	+ 7 W/m^2
Industrial-Almacén	1501-3000	+ 6 W/m^2
	Más de 3000	+ 5 W/m^2

Para el caso de instalaciones en viviendas plurifamiliares en altura, la instalación se refiere al conjunto de viviendas de una misma comunidad o mancomunidad de propietarios, pudiéndose concentrar la instalación de los paneles solares fotovoltaicos en cualquiera de las zonas comunes de la misma, siempre que cumpla las condiciones estéticas y constructivas indicadas anteriormente.

La potencia eléctrica total instalada se calculará como el sumatorio de los productos unitarios de cada tramo por su ratio correspondiente indicada en la tabla anterior.

APÉNDICE

Terminología respecto a la energía solar fotovoltaica

Célula solar o fotovoltaica: dispositivo que transforma la radiación solar en energía eléctrica.

Cerramiento: función que realizan los módulos que constituyen el tejado o la fachada de la construcción arquitectónica,

debiendo garantizar la debida estanqueidad y aislamiento técnico.

Elementos de sombreado: módulos térmicos o fotovoltaicos que protegen a la construcción arquitectónica de la sobrecarga térmica causada por los rayos solares, proporcionando sombras en el tejado o en la fachada de la misma.

Generador fotovoltaico: asociación en paralelo y en serie de módulos fotovoltaicos.

Instalación solar fotovoltaica: aquella que dispone de módulos fotovoltaicos para la conversión directa de la radiación solar en energía eléctrica, sin ningún paso intermedio.

Integración arquitectónica de módulos: módulos términos o fotovoltaicos que cumplen la doble función, energética y arquitectónica (revestimiento, cerramiento o sombreado), y, además, sustituyen a elementos constructivos convencionales o son constituyentes de la composición arquitectónica.

Irradiación solar: energía incidente por unidad de superficie sobre un plano dado, obtenida por integración de la irradiancia durante un intervalo de tiempo dado, normalmente una hora o un día. Se mide en kWh/m2.

lrradiancia solar: potencia mediante incidente por unidad de superficie sobre un plano dado. Se expresa en kW/m2.

Módulo o panel fotovoltaico: conjunto de células solares directamente interconectadas y encapsuladas como único bloque, entre materiales que las protegen de los efectos de la intemperie.

Pérdidas por inclinación: cantidad de irradiación solar no aprovechada por el sistema generador a consecuencia de no tener la inclinación óptima.

Pérdidas por orientación: cantidad de irradiación solar no aprovechada por el sistema generador a consecuencia de no tener la orientación óptima.

Pérdidas por sombras: cantidad de irradiación solar no aprovechada por el sistema generador a consecuencia de la existencia de sombras sobre el mismo en algún momento del día.

Superposición de módulos: módulos térmicos o fotovoltaicos que se colocan paralelos a la envolvente del edifico sin la doble funcionalidad definida en la integración arquitectónica; no obstante, no se consideran los módulos horizontales.”.

TERCERO. PUBLICACIÓN Y ENTRADA EN VIGOR DE LA ORDENANZA. Una vez aprobada definitivamente, insértese el correspondiente anuncio, acompañado del texto íntegro de la ordenanza en el Boletín Oficial de la Provincia y en el Tablón de Edictos Municipal, entrando en vigor a los quince días hábiles de la publicación en el B. O. P. de su aprobación definitiva.

CUARTO. COMUNICACIÓN DEL ACUERDO DE APROBACIÓN DEFINITIVA DE LA ORDENANZA MUNICIPAL PARA LA INCORPORACIÓN DE SISTEMAS DE CAPTACIÓN Y APROVECHAMIENTO DE ENERGÍA SOLAR FOTOVOLTAICA. Una vez aprobada definitivamente, se remitirá copia íntegra y fehaciente de la misma a la Administración del Estado, de la Comunidad Autónoma y Excmo. Cabildo de Gran Canaria.”.

Contra el citado acto expreso, que es definitivo en vía administrativa, podrá interponerse en el plazo de DOS MESES, contados desde el día siguiente al de la publicación del presente anuncio, RECURSO CONTENCIOSO-ADMINISTRATIVO ante la Sala de lo Contencioso-administrativo del Tribunal Superior de Justicia de Canarias (sede de Las Palmas) a tenor de lo establecido en los artículos 8 y 10 de la ley 29/1998, de 13 de julio, reguladora de la Jurisdicción Contencioso-administrativa, en concordancia con el artículo 109 de la Ley 30/1992, de 26 de noviembre, de Régimen Jurídico de las Administraciones Públicas y del Procedimiento Administrativo Común.

Todo ello sin perjuicio de cualquier otra acción o recurso que se estimare oportuno interponer.

Lo que se hace público para general conocimiento.

Las Palmas de Gran Canaria, a treinta de septiembre de dos mil nueve.

LA SECRETARIA GENERAL DEL PLENO, Ana María Echeandía Mota.

18.820

Syllabus

NOTE: Where it is feasible, a syllabus (headnote) will be released, as is being done in connection with this case, at the time the opinion is issued. The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States* v. *Detroit Timber & Lumber Co.,* 200 U. S. 321, 337.

SUPREME COURT OF THE UNITED STATES

Syllabus

LARUE *v.* DEWOLFF, BOBERG & ASSOCIATES, INC., ET AL.

CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT

No. 06–856. Argued November 26, 2007—Decided February 20, 2008

Petitioner, a participant in a defined contribution pension plan, alleged that the plan administrator's failure to follow petitioner's investment directions "depleted" his interest in the plan by approximately $150,000 and amounted to a breach of fiduciary duty under the Employee Retirement Income Security Act of 1974 (ERISA). The District Court granted respondents judgment on the pleadings, and the Fourth Circuit affirmed. Relying on *Massachusetts Mutual Life Ins. Co.* v. *Russell,* 473 U. S. 134, the Circuit held that ERISA §502(a)(2) provides remedies only for entire plans, not for individuals.

Held: Although §502(a)(2) does not provide a remedy for individual injuries distinct from plan injuries, it does authorize recovery for fiduciary breaches that impair the value of plan assets in a participant's individual account. Section 502(a)(2) provides for suits to enforce the liability-creating provisions of §409, concerning breaches of fiduciary duties that harm plans. The principal statutory duties imposed by §409 relate to the proper management, administration, and investment of plan assets, with an eye toward ensuring that the benefits authorized by the plan are ultimately paid to plan participants. The misconduct that petitioner alleges falls squarely within that category, unlike the misconduct in *Russell*. There, the plaintiff received all of the benefits to which she was contractually entitled, but sought consequential damages arising from a delay in the processing of her claim. *Russell*'s emphasis on protecting the "entire plan" reflects the fact that the disability plan in *Russell,* as well as the typical pension plan at that time, promised participants a fixed benefit. Misconduct by such a plan's administrators will not affect an individual's entitlement to a defined benefit unless it creates or enhances the risk of

Syllabus

default by the entire plan. For defined contribution plans, however, fiduciary misconduct need not threaten the entire plan's solvency to reduce benefits below the amount that participants would otherwise receive. Whether a fiduciary breach diminishes plan assets payable to all participants or only to particular individuals, it creates the kind of harms that concerned §409's draftsmen. Thus, *Russell*'s "entire plan" references, which accurately reflect §409's operation in the defined benefit context, are beside the point in the defined contribution context. Pp. 4–8.

450 F. 3d 570, vacated and remanded.

STEVENS, J., delivered the opinion of the Court, in which SOUTER, GINSBURG, BREYER, and ALITO, JJ., joined. ROBERTS, C. J., filed an opinion concurring in part and concurring in the judgment, in which KENNEDY, J., joined. THOMAS, J., filed an opinion concurring in the judgment, in which SCALIA, J., joined.

SUPREME COURT OF THE UNITED STATES

No. 06–856

JAMES LARUE, PETITIONER *v.* DEWOLFF, BOBERG & ASSOCIATES, INC., ET AL.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT

[February 20, 2008]

JUSTICE STEVENS delivered the opinion of the Court.

In *Massachusetts Mut. Life Ins. Co.* v. *Russell,* 473 U. S. 134 (1985), we held that a participant in a disability plan that paid a fixed level of benefits could not bring suit under §502(a)(2) of the Employee Retirement Income Security Act of 1974 (ERISA), 88 Stat. 891, 29 U. S. C. §1132(a)(2), to recover consequential damages arising from delay in the processing of her claim. In this case we consider whether that statutory provision authorizes a participant in a defined contribution pension plan to sue a fiduciary whose alleged misconduct impaired the value of plan assets in the participant's individual account.[1] Relying on our decision in *Russell*, the Court of Appeals for the

[1]As its names imply, a "defined contribution plan" or "individual account plan" promises the participant the value of an individual account at retirement, which is largely a function of the amounts contributed to that account and the investment performance of those contributions. A "defined benefit plan," by contrast, generally promises the participant a fixed level of retirement income, which is typically based on the employee's years of service and compensation. See §§3(34)–(35), 29 U. S. C. §§1002(34)–(35); P. Schneider & B. Freedman, ERISA: A Comprehensive Guide §3.02 (2d ed. 2003).

Fourth Circuit held that §502(a)(2) "provides remedies only for entire plans, not for individuals. . . . Recovery under this subsection must 'inure[ ] to the benefit of the plan *as a whole*,' not to particular persons with rights under the plan." 450 F. 3d 570, 572–573 (2006) (quoting *Russell*, 473 U. S., at 140). While language in our *Russell* opinion is consistent with that conclusion, the rationale for *Russell*'s holding supports the opposite result in this case.

I

Petitioner filed this action in 2004 against his former employer, DeWolff, Boberg & Associates (DeWolff), and the ERISA-regulated 401(k) retirement savings plan administered by DeWolff (Plan). The Plan permits participants to direct the investment of their contributions in accordance with specified procedures and requirements. Petitioner alleged that in 2001 and 2002 he directed DeWolff to make certain changes to the investments in his individual account, but DeWolff never carried out these directions. Petitioner claimed that this omission "depleted" his interest in the Plan by approximately $150,000, and amounted to a breach of fiduciary duty under ERISA. The complaint sought "'make-whole' or other equitable relief as allowed by [§502(a)(3)]," as well as "such other and further relief as the court deems just and proper." Civil Action No. 2:04–1747–18 (D. S. C.), p. 4, 2 Record, Doc. 1.

Respondents filed a motion for judgment on the pleadings, arguing that the complaint was essentially a claim for monetary relief that is not recoverable under §502(a)(3). Petitioner countered that he "d[id] not wish for the court to award him any money, but . . . simply want[ed] the plan to properly reflect that which would be his interest in the plan, but for the breach of fiduciary duty." Reply to Defendants Motion to Dismiss, p. 7, 3 *id.,* Doc. 17. The District Court concluded, however, that since

respondents did not possess any disputed funds that rightly belonged to petitioner, he was seeking damages rather than equitable relief available under §502(a)(3). Assuming, *arguendo,* that respondents had beached a fiduciary duty, the District Court nonetheless granted their motion.

On appeal petitioner argued that he had a cognizable claim for relief under §§502(a)(2) and 502(a)(3) of ERISA. The Court of Appeals stated that petitioner had raised his §502(a)(2) argument for the first time on appeal, but nevertheless rejected it on the merits.

Section 502(a)(2) provides for suits to enforce the liability-creating provisions of §409, concerning breaches of fiduciary duties that harm plans.[2] The Court of Appeals cited language from our opinion in *Russell* suggesting that that these provisions "protect the entire plan, rather than the rights of an individual beneficiary." 473 U. S., at 142. It then characterized the remedy sought by petitioner as "personal" because he "desires recovery to be paid into his plan account, an instrument that exists specifically for his benefit," and concluded:

> "We are therefore skeptical that plaintiff's individual remedial interest can serve as a legitimate proxy for the plan in its entirety, as [§502(a)(2)] requires. To be sure, the recovery plaintiff seeks could be seen

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[2] Section 409(a) provides:

"Any person who is a fiduciary with respect to a plan who breaches any of the responsibilities, obligations, or duties imposed upon fiduciaries by this title shall be personally liable to make good to such plan any losses to the plan resulting from each such breach, and to restore to such plan any profits of such fiduciary which have been made through use of assets of the plan by the fiduciary, and shall be subject to such other equitable or remedial relief as the court may deem appropriate, including removal of such fiduciary. A fiduciary may also be removed for a violation of section 411 of this Act." 88 Stat. 886, 29 U. S. C. §1109(a).

> as accruing to the plan in the narrow sense that it would be paid into plaintiff's plan *account*, which is part of the plan. But such a view finds no license in the statutory text, and threatens to undermine the careful limitations Congress has placed on the scope of ERISA relief." 450 F. 3d, at 574.

The Court of Appeals also rejected petitioner's argument that the make-whole relief he sought was "equitable" within the meaning of §502(a)(3). Although our grant of certiorari, 551 U. S. ___ (2007), encompassed the §502(a)(3) issue, we do not address it because we conclude that the Court of Appeals misread §502(a)(2).

II

As the case comes to us we must assume that respondents breached fiduciary obligations defined in §409(a), and that those breaches had an adverse impact on the value of the plan assets in petitioner's individual account. Whether petitioner can prove those allegations and whether respondents may have valid defenses to the claim are matters not before us.[3] Although the record does not reveal the relative size of petitioner's account, the legal issue under §502(a)(2) is the same whether his account includes 1% or 99% of the total assets in the plan.

As we explained in *Russell*, and in more detail in our later opinion in *Varity Corp.* v. *Howe,* 516 U. S. 489, 508–512 (1996), §502(a) of ERISA identifies six types of civil actions that may be brought by various parties. The second, which is at issue in this case, authorizes the Secretary of Labor as well as plan participants, beneficiaries, and fiduciaries, to bring actions on behalf of a plan to

[3] For example, we do not decide whether petitioner made the alleged investment directions in accordance with the requirements specified by the Plan, whether he was required to exhaust remedies set forth in the Plan before seeking relief in federal court pursuant to §502(a)(2), or whether he asserted his rights in a timely fashion.

recover for violations of the obligations defined in §409(a). The principal statutory duties imposed on fiduciaries by that section "relate to the proper management, administration, and investment of fund assets," with an eye toward ensuring that "the benefits authorized by the plan" are ultimately paid to participants and beneficiaries. *Russell*, 473 U. S., at 142; see also *Varity*, 516 U. S., at 511–512 (noting that §409's fiduciary obligations "relat[e] to the plan's financial integrity" and "reflec[t] a special congressional concern about plan asset management"). The misconduct alleged by the petitioner in this case falls squarely within that category.[4]

The misconduct alleged in *Russell*, by contrast, fell outside this category. The plaintiff in *Russell* received all of the benefits to which she was contractually entitled, but sought consequential damages arising from a delay in the processing of her claim. 473 U. S., at 136–137. In holding that §502(a)(2) does not provide a remedy for this type of injury, we stressed that the text of §409(a) characterizes the relevant fiduciary relationship as one "with respect to a plan," and repeatedly identifies the "plan" as the victim of any fiduciary breach and the recipient of any relief. See *id.*, at 140. The legislative history likewise revealed that "the crucible of congressional concern was misuse and

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[4]The record does not reveal whether the alleged $150,000 injury represents a decline in the value of assets that DeWolff should have sold or an increase in the value of assets that DeWolff should have purchased. Contrary to respondents' argument, however, §502(a)(2) encompasses appropriate claims for "lost profits." See Brief for Respondents 12–13. Under the common law of trusts, which informs our interpretation of ERISA's fiduciary duties, see *Varity*, 516 U. S., at 496–497, trustees are "chargeable with . . . any profit which would have accrued to the trust estate if there had been no breach of trust," including profits forgone because the trustee "fails to purchase specific property which it is his duty to purchase." 1 Restatement (Second) Trusts §205, and Comment *i*, §211 (1957); see also 3 A. Scott, Law on Trusts §§205, 211 (3d ed. 1967).

mismanagement of plan assets by plan administrators." *Id.*, at 141, n. 8. Finally, our review of ERISA as a whole confirmed that §§502(a)(2) and 409 protect "the financial integrity of the plan," *id.,* at 142, n. 9, whereas other provisions specifically address claims for benefits. See *id.*, at 143–144 (discussing §§502(a)(1)(B) and 503). We therefore concluded:

> "A fair contextual reading of the statute makes it abundantly clear that its draftsmen were primarily concerned with the possible misuse of plan assets, and with remedies that would protect the entire plan, rather than with the rights of an individual beneficiary." *Id.*, at 142.

Russell's emphasis on protecting the "entire plan" from fiduciary misconduct reflects the former landscape of employee benefit plans. That landscape has changed.

Defined contribution plans dominate the retirement plan scene today.[5] In contrast, when ERISA was enacted, and when *Russell* was decided, "the [defined benefit] plan was the norm of American pension practice." J. Langbein, S. Stabile, & B. Wolk, Pension and Employee Benefit Law 58 (4th ed. 2006); see also Zelinsky, The Defined Contribution Paradigm, 114 Yale L. J. 451, 471 (2004) (discussing the "significant reversal of historic patterns under which the traditional defined benefit plan was the dominant paradigm for the provision of retirement income"). Unlike the defined contribution plan in this case, the disability plan at issue in *Russell* did not have individual accounts;

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[5] See, *e.g.,* D. Rajnes, An Evolving Pension System: Trends in Defined Benefit and Defined Contribution Plans, Employee Benefit Research Institute (EBRI) Issue Brief No. 249 (Sept. 2002), http://www.ebri.org/pdf/briefspdf/0902ib.pdf (all Internet materials as visited Jan. 28, 2008, and available in Clerk of Court's case file); Facts from EBRI: Retirement Trends in the United States Over the Past Quarter-Century (June 2007), http://www.ebri.org/pdf/publications/facts/0607fact.pdf.

it paid a fixed benefit based on a percentage of the employee's salary. See *Russell* v. *Massachusetts Mut. Life Ins. Co.*, 722 F. 2d 482, 486 (CA9 1983).

The "entire plan" language in *Russell* speaks to the impact of §409 on plans that pay defined benefits. Misconduct by the administrators of a defined benefit plan will not affect an individual's entitlement to a defined benefit unless it creates or enhances the risk of default by the entire plan. It was that default risk that prompted Congress to require defined benefit plans (but not defined contribution plans) to satisfy complex minimum funding requirements, and to make premium payments to the Pension Benefit Guaranty Corporation for plan termination insurance. See Zelinsky, 114 Yale L. J., at 475–478.

For defined contribution plans, however, fiduciary misconduct need not threaten the solvency of the entire plan to reduce benefits below the amount that participants would otherwise receive. Whether a fiduciary breach diminishes plan assets payable to all participants and beneficiaries, or only to persons tied to particular individual accounts, it creates the kind of harms that concerned the draftsmen of §409. Consequently, our references to the "entire plan" in *Russell,* which accurately reflect the operation of §409 in the defined benefit context, are beside the point in the defined contribution context.

Other sections of ERISA confirm that the "entire plan" language from *Russell*, which appears nowhere in §409 or §502(a)(2), does not apply to defined contribution plans. Most significant is §404(c), which exempts fiduciaries from liability for losses caused by participants' exercise of control over assets in their individual accounts. See also 29 CFR §2550.404c–1 (2007). This provision would serve no real purpose if, as respondents argue, fiduciaries never had any liability for losses in an individual account.

We therefore hold that although §502(a)(2) does not provide a remedy for individual injuries distinct from

plan injuries, that provision does authorize recovery for fiduciary breaches that impair the value of plan assets in a participant's individual account. Accordingly, the judgment of the Court of Appeals is vacated, and the case is remanded for further proceedings consistent with this opinion.[6]

It is so ordered.

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[6] After our grant of certiorari respondents filed a motion to dismiss the writ, contending that the case is moot because petitioner is no longer a participant in the Plan. While his withdrawal of funds from the Plan may have relevance to the proceedings on remand, we denied their motion because the case is not moot. A plan "participant," as defined by §3(7) of ERISA, 29 U. S. C. §1002(7), may include a former employee with a colorable claim for benefits. See, *e.g., Harzewski* v. *Guidant Corp.*, 489 F. 3d 799 (CA7 2007).

SUPREME COURT OF THE UNITED STATES

No. 06–856

JAMES LARUE, PETITIONER *v.* DEWOLFF, BOBERG & ASSOCIATES, INC., ET AL.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT

[February 20, 2008]

CHIEF JUSTICE ROBERTS, with whom JUSTICE KENNEDY joins, concurring in part and concurring in the judgment.

In the decision below, the Fourth Circuit concluded that the loss to LaRue's individual plan account did not permit him to "serve as a legitimate proxy for the plan in its entirety," thus barring him from relief under §502(a)(2) of the Employee Retirement Income Security Act of 1974 (ERISA), 29 U. S. C. §1132(a)(2). 450 F. 3d 570, 574 (2006). The Court today rejects that reasoning. See *ante*, at 4, 7–8. I agree with the Court that the Fourth Circuit's analysis was flawed, and join the Court's opinion to that extent.

The Court, however, goes on to conclude that §502(a)(2) does authorize recovery in cases such as the present one. See *ante*, at 7–8. It is not at all clear that this is true. LaRue's right to direct the investment of his contributions was a right granted and governed by the plan. See *ante*, at 2. In this action, he seeks the benefits that would otherwise be due him if, as alleged, the plan carried out his investment instruction. LaRue's claim, therefore, is a claim for benefits that turns on the application and interpretation of the plan terms, specifically those governing investment options and how to exercise them.

It is at least arguable that a claim of this nature properly lies only under §502(a)(1)(B) of ERISA. That provi-

sion allows a plan participant or beneficiary "to recover benefits due to him under the terms of his plan, to enforce his rights under the terms of the plan, or to clarify his rights to future benefits under the terms of the plan." 29 U. S. C. §1132(a)(1)(B). It is difficult to imagine a more accurate description of LaRue's claim. And in fact claimants have filed suit under §502(a)(1)(B) alleging similar benefit denials in violation of plan terms. See, *e.g., Hess* v. *Reg-Ellen Machine Tool Corp.*, 423 F. 3d 653, 657 (CA7 2005) (allegation made under §502(a)(1)(B) that a plan administrator wrongfully denied instruction to move retirement funds from employer's stock to a diversified investment account).

If LaRue may bring his claim under §502(a)(1)(B), it is not clear that he may do so under §502(a)(2) as well. Section 502(a)(2) provides for "appropriate" relief. Construing the same term in a parallel ERISA provision, we have held that relief is not "appropriate" under §502(a)(3) if another provision, such as §502(a)(1)(B), offers an adequate remedy. See *Varity Corp.* v. *Howe*, 516 U. S. 489, 515 (1996). Applying the same rationale to an interpretation of "appropriate" in §502(a)(2) would accord with our usual preference for construing the "same terms [to] have the same meaning in different sections of the same statute," *Barnhill* v. *Johnson*, 503 U. S. 393, 406 (1992), and with the view that ERISA in particular is a "'comprehensive and reticulated statute'" with "carefully integrated civil enforcement provisions," *Massachusetts Mut. Life Ins. Co.* v. *Russell*, 473 U. S. 134, 146 (1985) (quoting *Nachman Corp.* v. *Pension Benefit Guaranty Corporation*, 446 U. S. 359, 361 (1980)). In a variety of contexts, some Courts of Appeals have accordingly prevented plaintiffs from recasting what are in essence plan-derived benefit claims that should be brought under §502(a)(1)(B) as claims for fiduciary breaches under §502(a)(2). See, *e.g., Coyne & Delany Co.* v. *Blue Cross & Blue Shield of Va.,*

Inc., 102 F. 3d 712, 714 (CA4 1996). Other Courts of Appeals have disagreed with this approach. See, *e.g., Graden* v. *Conexant Systems Inc.*, 496 F. 3d 291, 301 (CA3 2007).

The significance of the distinction between a §502(a)(1)(B) claim and one under §502(a)(2) is not merely a matter of picking the right provision to cite in the complaint. Allowing a §502(a)(1)(B) action to be recast as one under §502(a)(2) might permit plaintiffs to circumvent safeguards for plan administrators that have developed under §502(a)(1)(B). Among these safeguards is the requirement, recognized by almost all the Courts of Appeals, see *Fallick* v. *Nationwide Mut. Ins. Co.*, 162 F. 3d 410, 418, n. 4 (CA6 1998) (citing cases), that a participant exhaust the administrative remedies mandated by ERISA §503, 29 U. S. C. §1133, before filing suit under §502(a)(1)(B).* Equally significant, this Court has held that ERISA plans may grant administrators and fiduciaries discretion in determining benefit eligibility and the meaning of plan terms, decisions that courts may review only for an abuse of discretion. *Firestone Tire & Rubber Co.* v. *Bruch*, 489 U. S. 101, 115 (1989).

These safeguards encourage employers and others to undertake the voluntary step of providing medical and retirement benefits to plan participants, see *Aetna Health Inc.* v. *Davila*, 542 U. S. 200, 215 (2004), and have no doubt engendered substantial reliance interests on the part of plans and fiduciaries. Allowing what is really a claim for benefits under a plan to be brought as a claim for breach of fiduciary duty under §502(a)(2), rather than as a claim for benefits due "under the terms of [the] plan," §502(a)(1)(B), may result in circumventing such plan

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*Sensibly, the Court leaves open the question whether exhaustion may be required of a claimant who seeks recovery for a breach of fiduciary duty under §502(a)(2). See *ante*, at 4, n. 3.

terms.

I do not mean to suggest that these are settled questions. They are not. Nor are we in a position to answer them. LaRue did not rely on §502(a)(1)(B) as a source of relief, and the courts below had no occasion to address the argument, raised by an *amicus* in this Court, that the availability of relief under §502(a)(1)(B) precludes LaRue's fiduciary breach claim. See Brief for ERISA Industry Committee as *Amicus Curiae* 13–30. I simply highlight the fact that the Court's determination that the present claim may be brought under §502(a)(2) is reached without considering whether the possible availability of relief under §502(a)(1)(B) alters that conclusion. See, *e.g., United Parcel Service, Inc.* v. *Mitchell*, 451 U. S. 56, 60, n. 2 (1981) (noting general reluctance to consider arguments raised only by an *amicus* and not considered by the courts below). In matters of statutory interpretation, where principles of *stare decisis* have their greatest effect, it is important that we not seem to decide more than we do. I see nothing in today's opinion precluding the lower courts on remand, if they determine that the argument is properly before them, from considering the contention that LaRue's claim may proceed only under §502(a)(1)(B). In any event, other courts in other cases remain free to consider what we have not—what effect the availability of relief under §502(a)(1)(B) may have on a plan participant's ability to proceed under §502(a)(2).

SUPREME COURT OF THE UNITED STATES

No. 06–856

JAMES LARUE, PETITIONER *v.* DEWOLFF, BOBERG & ASSOCIATES, INC., ET AL.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT

[February 20, 2008]

JUSTICE THOMAS, with whom JUSTICE SCALIA joins, concurring in the judgment.

I agree with the Court that petitioner alleges a cognizable claim under §502(a)(2) of the Employee Retirement Income Security Act of 1974 (ERISA), 29 U. S. C. §1132(a)(2), but it is ERISA's text and not "the kind of harms that concerned [ERISA's] draftsmen" that compels my decision. *Ante*, at 7. In *Massachusetts Mut. Life Ins. Co.* v. *Russell*, 473 U. S. 134 (1985), the Court held that §409 of ERISA, 29 U. S. C. §1109, read together with §502(a)(2), authorizes recovery only by "the plan as an entity," 473 U. S., at 140, and does not permit individuals to bring suit when they do not seek relief on behalf of the plan, *id.*, at 139–144. The majority accepts *Russell*'s fundamental holding, but reins in the Court's further suggestion in *Russell* that suits under §502(a)(2) are meant to "protect the entire plan," rather than "the rights of an individual beneficiary." *Ante*, at 4–8; see *Russell*, *supra,* at 142. The majority states that emphasizing the "entire plan" was a sensible application of §§409 and 502(a)(2) in the historical context of defined benefit plans, but that the subsequent proliferation of defined contribution plans has rendered *Russell*'s dictum inapplicable to most modern cases. *Ante*, at 6–7. In concluding that a loss suffered by a participant's defined contribution plan

account because of a fiduciary breach "creates the kind of harms that concerned the draftsmen of §409," the majority holds that §502(a)(2) authorizes recovery for plan participants such as petitioner. *Ante*, at 7–8.

Although I agree with the majority's holding, I write separately because my reading of §§409 and 502(a)(2) is not contingent on trends in the pension plan market. Nor does it depend on the ostensible "concerns" of ERISA's drafters. Rather, my conclusion that petitioner has stated a cognizable claim flows from the unambiguous text of §§409 and 502(a)(2) as applied to defined contribution plans. Section 502(a)(2) states that "[a] civil action may be brought" by a plan "participant, beneficiary or fiduciary," or by the Secretary of Labor, to obtain "appropriate relief" under §409. 29 U. S. C. §1132(a)(2). Section 409(a) provides that "[a]ny person who is a fiduciary with respect to a *plan* . . . shall be personally liable to make good to such *plan* any losses to the *plan* resulting from each [fiduciary] breach, and to restore to such *plan* any profits of such fiduciary which have been made through use of assets of the *plan* by the fiduciary . . . ." 29 U. S. C. §1109(a) (emphasis added).

The plain text of §409(a), which uses the term "plan" five times, leaves no doubt that §502(a)(2) authorizes recovery only for the plan. Likewise, Congress' repeated use of the word "any" in §409(a) clarifies that the key factor is whether the alleged losses can be said to be losses "to the plan," not whether they are otherwise of a particular nature or kind. See, *e.g.*, *Ali* v. *Federal Bureau of Prisons*, *ante,* at 4 (noting that the natural reading of "any" is "one or some indiscriminately of whatever kind" (internal quotation marks omitted)). On their face, §§409(a) and 502(a)(2) permit recovery of *all* plan losses caused by a fiduciary breach.

The question presented here, then, is whether the losses to petitioner's individual 401(k) account resulting from

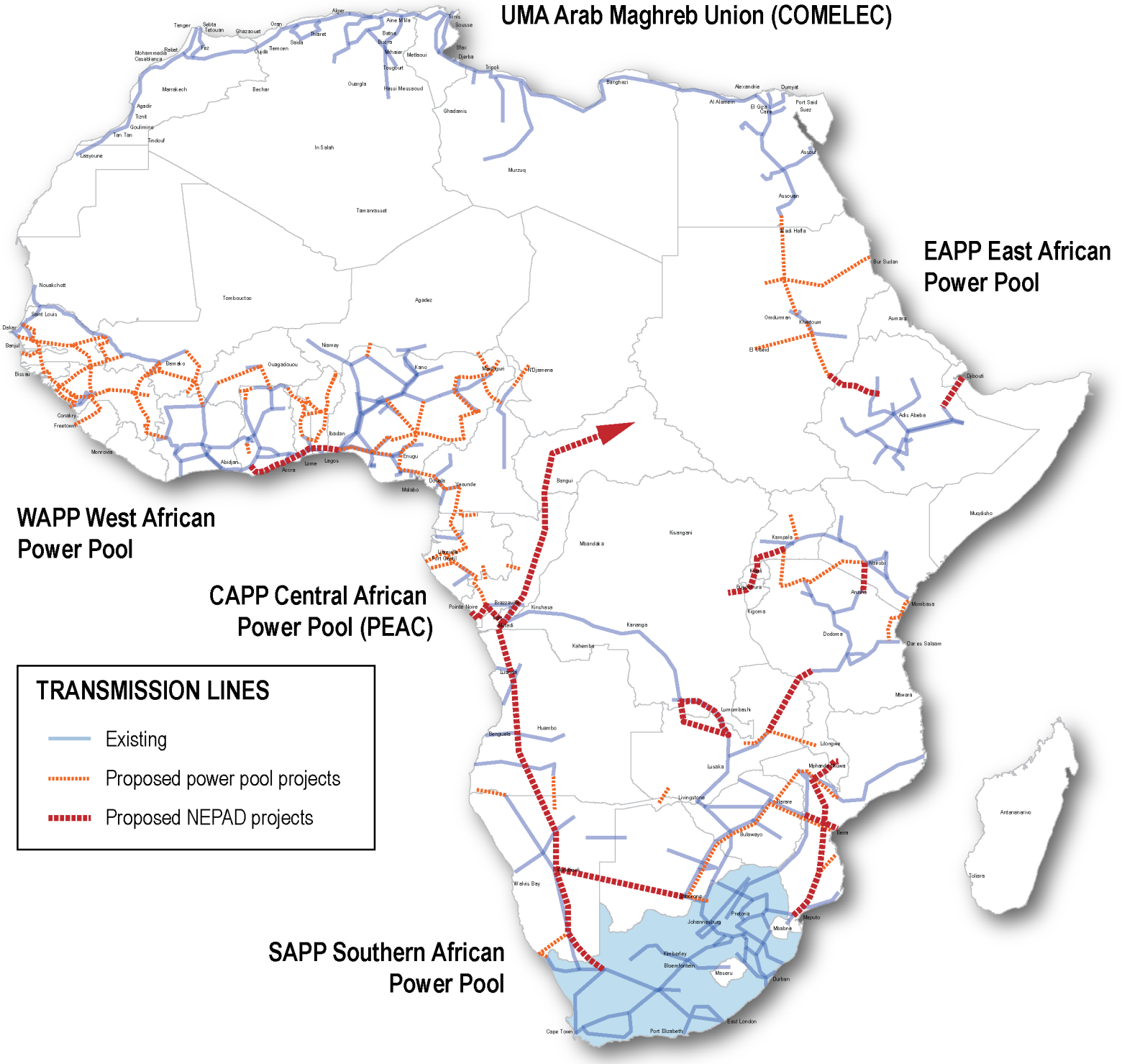
respondents' alleged breach of their fiduciary duties were losses "to the plan." In my view they were, because the assets allocated to petitioner's individual account were plan assets. ERISA requires the assets of a defined contribution plan (including "gains and losses" and legal recoveries) to be allocated for bookkeeping purposes to individual accounts within the plan for the beneficial interest of the participants, whose benefits in turn depend on the allocated amounts. See 29 U. S. C. §1002(34) (defining a "defined contribution plan" as a "plan which provides for an individual account for each participant and for benefits based solely upon the amount contributed to the participant's account, and any income, expenses, gains and losses, and any forfeitures of accounts of other participants which may be allocated to such participant's account"). Thus, when a defined contribution plan sustains losses, those losses are reflected in the balances in the plan accounts of the affected participants, and a recovery of those losses would be allocated to one or more individual accounts.

The allocation of a plan's assets to individual accounts for bookkeeping purposes does not change the fact that all the assets in the plan remain plan assets. A defined contribution plan is not merely a collection of unrelated accounts. Rather, ERISA requires a plan's combined assets to be held in trust and legally owned by the plan trustees. See 29 U. S. C. §1103(a) (providing that "all assets of an employee benefit plan shall be held in trust by one or more trustees"). In short, the assets of a defined contribution plan under ERISA constitute, at the very least, the sum of all the assets allocated for bookkeeping purposes to the participants' individual accounts. Because a defined contribution plan is essentially the sum of its parts, losses attributable to the account of an individual participant are necessarily "losses to the plan" for purposes of §409(a). Accordingly, when a participant sustains losses to his

individual account as a result of a fiduciary breach, the plan's aggregate assets are likewise diminished by the same amount, and §502(a)(2) permits that participant to recover such losses on behalf of the plan.*

*Of course, a participant suing to recover benefits on behalf of the plan is not entitled to monetary relief payable directly to him; rather, any recovery must be paid to the plan.

ELECTRICITY INTERCONNECTIONS



The boundaries, colours, denominations and any other information shown on this map do not imply, on the part of the European Commission, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

CSD-14 Matrix

What is the Matrix?

The Matrix is **an information tool** developed by the Secretariat. It aims to provide user-friendly information on practical experiences in implementation in the thematic areas of energy for sustainable development, industrial development, air pollution/atmosphere, and climate change. It is based on information submitted by Governments, including through national reports; and by UN agencies and Major Groups. It takes into account information contained in Secretary-General's reports and Partnerships for Sustainable Development registered with the CSD Secretariat, as well as information emerging from the regional implementation meetings.

The Matrix is not an official document of the CSD. As an information tool, it is a work in progress. This version has been updated to reflect discussions during CSD-14. The Secretariat will continue to update the Matrix as more information on implementation is made available.

Governments, UN agencies, and Major Groups, as well as other relevant regional and international organizations, are welcome to submit comments and inputs to the Matrix, at CSDMatrix@un.org.

Structure of the Matrix

The Matrix seeks to provide the user with a convenient overview of concrete experiences in addressing barriers and constraints identified in the areas of energy for sustainable development, industrial development, air pollution/atmosphere, and climate change. It consists of four columns and is structured as follows:

- *Barriers/Constraints* – Information in this column is based on the Secretary-General's Reports, national reports, reports of Regional Implementation Meetings, and inputs from Major Groups and CSD Partnerships.
- *Case studies* – Case studies are drawn from the Secretary-General's Reports, national reports, Reports from Regional Implementation Meetings, and inputs from Major Groups, CSD Partnerships, and case studies submitted at CSD-14.
- *Lessons learned, best practices or results* – This column provides a snapshot overview of the lessons learned, best practices or results of the particular case study.
- *Key implementation actors* – This column indicates key implementation actors, based on information contained in the case studies.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors

Theme: Energy

Energy Access [A21.9.12.(a); JPOI. Para 9, Para 20 (g), (o)

Energy access not prioritized/integrated into development strategies	**China – National township and village electrification programmes** http://www.nrel.gov/docs/fy04osti/35788.pdf	China made provision of electricity to rural villages a national priority. In a first phase it installed 290MW of village power systems in about 1000 villages in 6 remote provinces through a strong public private partnership.	Governments, local authorities, renewable energy industry enterprises, local communities
	South Africa - Eskom Electrification Program http://www.wbcsd.org/includes/getTarget.asp?type=DocDet&id=606	Strategies and planning for energy access should include defined targets, a technology plan, a centralised approach, and customer knowledge. Tariffs and technologies should be matched to customer requirements.	National and local Governments, private sector (Shell International Renewables Ltd.), public utilities, local rural communities
	Nepal - Rural Energy Development Programme http://www.redp.org.np/	Energy programmes work best when they are included in integrated approaches to community development involving both women and men, and establish central networks to address the problem of repetition and duplication of works prevalent in the energy sector.	National, district and local governments, community organizations, research institutes, women, private sector, World Bank, UNDP, IUCN
	ECOWAS - White Paper "Access to Energy Services for Rural and Peri-Urban Populations to Achieve the Millennium Development Goals" http://www.gvep.org/content/article/detail/11768	Energy access is not integrated into development strategies of member states of ECOWAS. Member States and the Region have decided to engage on an ambitious regional policy in order to increase access to modern energy services. In that process, their objective is to allow at least half of the population to have access to modern energy services by the year 2015. That is 36 million extra households and more than 49 000 extra localities with access to modern energy services.	ECOWAS Member States, UNDP, Major Groups (ENDA, KITE)
Inefficient and highly indebted public service providers	**Colombia: Electricity Market Reform** Enercol 2005, Carlos Caballero Argaez, "A manera de memoria: Una reforma a mitad de camino"	A middle of the road approach or "controlled" privatization was implemented which resulted in a 50/50 mix of public and private sector entities in generation and distribution and brought the best of both sectors to the integrated system.	Government, electric utilities, electricity regulatory bodies, consumer groups, private power producers
	South Africa - RE concessions in rural areas http://www.gnesd.org/Downloadables/RETs/ERC%20RETs%20final%20version.pdf	To make solar home systems affordable to the rural poor, the Government provided per-household capital subsidy of R3500 for first five years, also a R40 per month subsidy for electricity use, lowering monthly service	Government, private enterprises, local authorities

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		charge to R18. For the very poor, however, even that can be difficult to afford.	
	Local Capacity Development for Better Energy Governance- the Caucasus Environmental NGO Network- http://www.erranet.org/index.php?name=OE-eLibrary&file=download&id=3602&keret=N&showheader=N –	Improving relations between energy companies and consumers can lead to improved energy efficiency, sector governance, service reliability and coverage.	Caucasus Environmental NGO Network, USAID TELASI, GNERC, energy consumers
	Electricity Governance Toolkit for the Electricity Sector http://pubs.wri.org/pubs_description.cfm?PubID=4040	The Toolkit incorporates industry best practices in a decision support tool addressing policies, regulatory frameworks and environmental/social aspects.	World Resources Institute, National Institute for Public Finance and Policy, USAID
Lack of infrastructure and capacity	**Uganda-Solar PV for Public Buildings and Health Clinics in Uganda** http://www.un.org/esa/sustdev/csd/casestudies/solar_usa.pdf	Solar electrification of the Kakuunto Hospital, where the AIDS epidemic was first identified, now allows refrigeration of vaccines and medicine, operation of medical equipment, and pumping of clean drinking water.	Solar Light for Africa, Kakuunto Hospital, Global Environment and Technology Foundation., USAID
	GVEP Capacity Development Support http://www.gvep.org/section/services/capacity/ http://webapps01.un.org/dsd/partnerships/public/partnerships/188.html	Capacity Development aims to increase access to energy services by enhancing policy frameworks, entrepreneurial development, consumer organization, and credit systems, expanding the number and the capabilities of enterprises operating in rural markets.	International partnerships, government, entrepreneurs and local communities
	Tanzania – Access to Electricity Program Eases Poverty http://www.wbcsd.org/includes/getTarget.asp?type=DocDet&id=14048	A bottom-up approach focusing on affordability works best in providing access to electricity to low-income communities.	ABB Engineering, WWF, local governments, private sector, NGOs, aid agencies, civil society
	Australia – Bushlight http://www.bushlight.org.au	To improve the livelihood choices for remote indigenous communities in Australia through access to sustainable renewable energy services. A key element in the success of the Bushlight programme has been a focus on improving community capacity and confidence to choose and manage renewable energy services. Bushlight has developed a participative approach to energy planning and capacity building at the community level.	Government, indigenous communities
Inadequate electricity	**India, Ahmedabad - Slum Electrification**	The municipality adopted an innovative approach to	Ahmedabad Electricity Company,

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
services	http://www.usaid.gov/our_work/economic_growth_and_trade/energy/urban_energy/pubs/ss/india_slumelectric.pdf	dealing with the lack of land tenure and issued "no objection" certificates, which provided sufficient security for the utility to build infrastructure in the slum area. The partnership between the utility, municipality, and NGOs was key to gaining community trust and facilitating project implementation.	Ahmedabad Municipal Corporation; Self Employed Women`s Association, USAID
	Philippines Off-Grid Renewable Energy http://www.un.org/esa/sustdev/csd/casestudies/renewableEnergyy_USA.pdf	With electrification, villagers now have increased opportunities for productive activities such as mat weaving, sewing, light for extended study time and household work.	U.S. Department of Energy, USAID, Government of Philippines, Autonomous Region in Muslim Mindanao and Mirant Philippines.
	Australia – Rural Electrification http://www.bcse.org.au http://www.greenhouse.gov.au	To provide rural communities in Australia access to reliable, renewable energy systems. The Australian government and industries undertook the following initiatives in order to facilitate the adoption of new renewable energy technologies by rural communities: Demonstration projects (including solar and wind power for telephone and electricity services); development of training and standards; introduction of innovative renewable technology to remote areas (including hybrid technologies); diesel replacement in remote areas; electricity market reform; and access to finance. Several lessons: First, adequate training for designers and installers of alternative rural electrification technologies is essential. Second, cross-subsidies should not disadvantage alternative technologies. Third, ensuring that these technologies are financed and maintained on a similar basis to conventional rural electricity options should go a long way to facilitating widespread adoption of alternative rural electrification technologies.	Government, private sector
Limited access to clean energy services	**Nepal-Microcredit for Biogas Plants** http://www.un.org/esa/sustdev/csd/casestudies/biogas_usa.pdf	Providing access to credit through rural micro-finance institutions is making purchase of biogas plants within the means of the rural poor and alleviating indoor air pollution and pressure on limited forest fuelwood resources.	Nepal Rastra Bank (Central Bank), Alternative Energy Promotion Center, microcredit lenders, USAID
	African Rural Energy Enterprise Development http://www.areed.org	Sustainable and profitable rural enterprises are an effective vehicle for expanding the provision of clean energy services to rural populations.	UNEP, E+Co, NGOs, SMEs
	EU Energy Initiative for Poverty Eradication	The EUEI is a framework for policy dialogue with	The European Commission, EU

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
	and Sustainable Development (EUEI) http://www.euei.org	developing countries and the creation of specific financial instruments., including the: 220 million Euro ACP-EC Energy Facility that will co-finance energy service delivery in rural areas; the 4 million Euro Partnership Dialogue Facility that supports upstream policy dialogue; and the 17 million Euro COOPENER programme that supports capacity building in energy efficiency and renewable energy. Together these instruments now support activities in more than 50 developing countries. In addition the Africa-Europe Partnership for Infrastructure will help to improve access to energy by facilitating investments in cross-border and regional energy cooperation and trade.	Member States, Governments in developing countries, private sector, civil society and international organisations
Limited electricity interconnection between countries	**Southeast Europe Cooperation Initiative Transmission System Planning Project** http://www.usaid.gov/locations/europe_eurasia/press/success/high_voltage_grids.html	A regional strategic approach resulted in new investments in electric interconnections, increased coordination among electricity dispatch centers and increased coordination with European institutions.	Governments, regional energy associations, electric transmission companies
	Ethiopia - Nile Basin initiative - Eastern Nile Power Trade Investment Program http://www.nilebasin.org/entro/powertrade.htm http://webapps01.un.org/dsd/partnerships/public/partnerships/1013.html	In some of the Eastern Nile (EN) countries, lack of electricity is further exacerbated by shortages of imported fuel, wood/charcoal, and other forms of energy. One way to increase access to electricity is through power trade and the co-operative development of hydropower and transmission interconnection investment projects. There is substantial untapped hydropower potential in Ethiopia and Sudan. Egypt is developing thermal power generation and is interconnected to countries in the Mediterranean rim	Egypt, Ethiopia, Sudan
	Egypt - Mediterranean Ring project http://www.energybusinessreports.com/shop/item.asp?itemid=807	The goal of the ongoing Mediterranean Ring project is to provide interconnection of electric power transmission grids among the countries and regions that encircle the Mediterranean Sea. The concept involves linking electric power grids from Spain to Morocco through the remaining Maghreb (North African and Western Arab) countries, on to Egypt and the Mashreq, (Eastern Arab) countries, and from there up to Turkey. From Turkey the Ring would then link back into the European grid via Greece or through the newly interconnected Eastern European country grids.	Governments, electric transmission companies
Renewable Energy A21.9.12 (d), (f), (g), (i); JPOI 20 (c), (d), (e)			
High relative capital cost of renewable energy	**India Renewable Energy Programme** http://web.mit.edu/10.391J/www/proceedings/Mallet2001.pdf	Government policy motivated the private sector to install wind turbines by offering a) 100% accelerated depreciation on investment on the capital equipment in	Ministry of Non-conventional Energy Sources, Renewable Energy Industry Association,

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		the first year of installation, b) five year tax holiday on income from sale of power, c) special banking facility and d) guaranteed buy back of power at a profitable prices.	industry
	Argentina - Biofuel Law http://www.sagpya.mecon.gov.ar/new/0-0/agricultura/otros/biodiesel/trabajos.php http://www.iica.org.ar/biocombustibles/argentina/Ley-de-biocombustibles.pdf	The Argentine Senate approved a bill that will grant tax incentives to the producers of biofuels while guaranteeing them a share of the market for 15 years. The new legislation grants tax exemptions to farmers who use vegetable oil to produce biodiesel, sugar cane or corn to produce ethanol, or organic waste to produce biogas.	Government
	Morocco - Electrifying Rural Households http://www.wbcsd.org/includes/getTarget.asp?type=DocDet&id=15051	In regions containing disparate communities where grid extension is not economically feasible, electricity services can be provided through the creation of small, locally run companies that overcome the cost barrier of renewable energy by providing a range of basic services (electricity, water, gas and communications) for the required investment and this has proven popular with end-use	Governments, Electricité de France, Tenesol, Total, private sector, donors, IFIs, local communities
Lack of policy support for increased RE application	**Germany – Renewable Energy Sources Act 2000** http://www.erneuerbare-energien.de/inhalt/6465/36356/	The Renewable Energy Sources Act is crucial for the expansion of renewable energies in the electricity sector. It is based on a feed-in regulation to grant plant operators fixed compensation normally over 20 years. The level of compensation depends on the energy source and the year in which the plant started operation, as it is reduced each year for new plants (degression).	Government, private sector
	Australia – Renewable Energy in National Parks: Queensland Parks & Wildlife Service http://www.epa.qld.gov.au/parks_and_forests/managing_parks_and_forests/renewable_energy/	This program has demonstrated that there are significant ongoing savings to be gained from installing renewable energy systems in remote areas, despite high initial capital cost. Specialised training and expertise are required in the installation and servicing of these systems, with ongoing skills training for users important in enabling the acceptance and adoption of these new technologies. Solid policy implementation and structures, such as the Government subsidy scheme available for this project, are a major incentive in implementing remote renewable power systems.	Government
	China – National Renewable Law 2005	The law provides incentives to encourage the	Government, research institutes,

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
	http://www.nrel.gov/docs/fy04osti/35786.pdf	development of renewable technologies and provide market opportunities for renewable energy companies.	academia
	Barbados - Promotion of solar water heating systems http://www.sidsnet.org/successstories/11.html	The promotion of solar water heating systems in Barbados resulted from concessions granted by the Ministry of Finance, which enabled manufacturers to import materials duty-free, and provide consumers with partial or full tax deductions for the cost of the heaters. The solar water heating industry saves Barbados about $US 6.5 million per year in imported fuel.	Government, private sector
Limited investment and financial support	**South Africa- Solar Water Heating for Municipal Infrastructure Delivery in South Africa-** http://www.un.org/esa/sustdev/csd/casestudies/swhs_usa.pdf	Subsidized SWH systems were provided through a pilot project to demonstrate demand for this application. Now local financial institutions are providing soft credit terms that are affordable to the poor.	Winrock International, municipal housing authorities, engineering companies, financial institutions, USAID
	Germany – Market Incentive Programme http://www.kfw-foerderbank.de/EN_Home/Umweltschutz/RenewableE.jsp http://www.bafa.de/1/de/aufgaben/energie/erneuerbare_energien.php (German) http://www.iea.org/textbase/pamsdb/detail.aspx?mode=gr&id=83	Under this scheme, individuals and small and medium-sized businesses may apply for grants and soft loans for solar collectors, biomass boilers, biogas plants and geothermal heating systems. In addition, schools may apply for grants to install photovoltaic plants.	Government, private sector
	JREC Patient Capital Initiative http://europa.eu.int/comm/environment/jrec	The Patient Capital Initiative analyzed the nature of the risk capital funding gap. A feasibility study was conducted to assess the options of creating an innovative public-private financing mechanism that could blend public and private funding and deliver 'patient risk capital' to business development in developing countries and economies in transition at affordable terms. Work is ongoing to implement a Global Energy Efficiency and Renewable Energy Fund that will leverage public funds with a factor 10.	European Commission, Triodos Fund Management, E+Co, JREC
Lack of investment by government and private sector in RE R&D	**Denmark's wind energy hub** http://www.windpower.org/en/industry.htm	This industrial success story stems froman unrivalled cluster of knowledge where manufacturers, suppliers, research and educational institutions combine expertise, innovation and advanced technology into a strong industry.	Governments, private sector, public-private partnerships

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
	International Partnership for the Hydrogen Economy (IPHE) http://www.iphe.net/	The International Partnership for the Hydrogen Economy was established in 2003 as an international institution to accelerate the transition to a hydrogen economy. By creating the IPHE, the Partners have committed to accelerate the development of hydrogen and fuel cell technologies to improve their energy security, environmental security and economic security.	(members of Partnership) Australia, Brazil, Canada, China, European Commission, France, Germany, Iceland, India, Italy, Japan, Republic of Korea, New Zealand, Norway, Russian Federation, United Kingdom, United States
Inability of the rural and urban poor to pay high upfront costs	**Bangladesh – Grameen Shakti solar home systems** http://www.lged-rein.org/solar/solar_gs.htm	Grameen Bank has provided innovative microfinancing for solar home systems that now makes such systems affordable to the poor. Children's education has improved due to better quality of light. Men and women reported increase in income due to extended working hours after dusk. Living standard of users has also improved.	NGOs, micro-credit institutions, community based organizations, renewable energy service providers
Lack of information about RE resources and applications at all levels	**REN21 – Global status of information on RE resources, policies and tools** http://www.ren21.net/globalstatusreport/RE2005_Global_Status_Report.pdf http://webapps01.un.org/dsd/partnerships/public/partnerships/1596.html	A source for global information on renewable energy technologies, markets, investment and policies.	Governments, international institutions and organisations, partnerships, policy makers
	REEEP – Actors' Catalogue http://www.reegle.info/home.1.htm http://webapps01.un.org/dsd/partnerships/public/partnerships/198.html	This information gateway provides the catalogue of over 600 institutions and companies active in renewable energy development	International partnerships and governments
	IEA – Global Renewable Energy Policies and Measures Database http://renewables.iea.org	Provides unbiased information and analysis on energy policies and measures for use by decision-makers, policy experts, researchers and industry, as well the broader public.	Governments, international organisations
	Sri Lanka and Maldives-Renewable Resources Assessment for Stimulating Investment http://www.usaid.gov/our_work/economic_growth_and_trade/energy/rural_energy/pubs/ps/sasia_resassess.pdf	Making critical information on renewable energy resources available to government planners and investors at an early stage will greatly enhance and accelerate investments in renewable energy technologies.	U.S. National Renewable Energy Laboratory, governments
	Solar and Wind Resource Assessment http://www.uneptie.org/energy/act/re/fact_sheet/docs/swera.pdf	High quality information on solar and wind energy resources can help renewable energy become part of the national energy development plan. Reliable site-specific	UNEP, research institutes, governments

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		information is also essential for analyzing the merits of individual projects.	
	Germany - Technical Expertise for Renewable Energy Application (TERNA) http://www.gtz.de/en/themen/umwelt-infrastruktur/energie/6657.htm	Closing the knowledge gap in developing countries, the wind energy programme TERNA supports partner countries in the assessment and utilisation of their wind energy potential for generating grid-connected electricity. Where the assessment is positive, this leads to the initiation of wind energy projects that are ready for investment to begin. As an parallel measure, the German development cooperation advises partner countries on the establishment and improvement of energy policy frameworks.	Governments, utilities, private sector
	International Action Programme (IAP) for Renewable Energies http://www.renewables2004.de/en/2004/outcome_actionprogramme.asp	The IAP includes almost 200 initiatives from all the regions of the world, it covers: expansion targets, favourable political framework conditions, private and public financing, developing capacities in training, research and development. It is estimated that implementation of the IAP will in 2015 reduce the worldwide emission of CO2 1.2 billion tons/year (around 5% of global CO2-emissions), provide access to energy for an additional 300 million people, provide 163 GW additional installed electrical capacity from renewable energies and create investments at the level of USD 326 billion.	Governments, international organisations, IFIs, private sector, NGOs
	Uganda- The Uganda Photovoltaic Pilot Project for Rural Electrification http://www.un.org/esa/sustdev/csd/casestudies/e9_e2_uganda.pdf	The project aimed at popularizing the use of photovoltaics in the rural areas where the hydropower grid has not reached. The following are some of the capacity building achievements: (i) Awareness was increased in rural areas among decision makers on environmental issues of energy use and the important role of the PV systems. (ii) Adequate capacity was built in the Ministry of Energy and Mineral Development to promote, monitor and evaluate PV projects and review policies which promote the solar industry.	Government
	Johannesburg Renewable Energy Coalition (JREC) renewable energy policies and measures database http://europa.eu.int/comm/environment/jrec	Enhanced reporting and awareness of existing renewable energy policies and measures is conducive to the development of local, national, regional and global renewable energy markets. Better information also helps in attracting local and international funding. The global renewable energies database is available online and covers already over 600 policies and measures enacted by some 50 countries. The database will ultimately achieve	International Energy Agency, European Commission, JREC members

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		global coverage.	
Advanced and Cleaner Technologies A21.9.12 (e), (f), (k); JPOI 20 (d), (e), (i), (j), (k)			
Inadequate R&D	**Combined Heat & Power Partnership** http://www.epa.gov/chp/pdf/CHPPFactSheet.pdf http://www.epa.gov/chp/pdf/Ethanol_Factsheet_Final%20Draft%20Jan05.pdf http://www.epa.gov/chp/pdf/catalog_entire.pdf	A number of Governments are supporting R&D and deployment of. cogeneration that can double efficiency for power generation and district heating,, thereby reducing the amount of fuel burned, and pollution created, per unit of energy.	US EPA, US DOE, US Combined Heat & Power Association, various industries and state governments.
	Australia – Coal21 http://www.coal21.comau/overview.php	Objectives: Create a national action plan to scope, develop, demonstrate and implement near zero emissions coal-based electricity generation. Facilitate the demonstration, commercialisation and early uptake of technologies identified in the plan. Promote relevant Australian RD&D. Foster greater public awareness.	Government
	Australia - Low Emission Technology http://www.dpmc.gov.au/publications/energy_future/	The *Energy Transformed* flagship for the development of energy technologies for brown coal, black coal and the geological storage of CO_2. The *Low Emissions Technology Demonstration Fund* supports the demonstration of new low emissions technologies with the aim of encouraging private sector investment. This initiative is supported by the *Renewable Energy Development Initiative* that aims to promote the commercialisation of renewable energy technologies, systems and processes. Further funding allocated for the development of advanced electricity storage technologies. The progress made towards developing and implementing low emissions technology in Australia has illustrated the need for a multidisciplinary approach, with close involvement of the government, research and industry. The right policy settings are required in order to direct resources into and encourage technology driven approaches.	Government, private sector
	Asia-Pacific Partnership on Clean Development and Climate http://www.asiapacificpartnership.org/	New effort to accelerate the development and deployment of clean energy technologies. The founding partners agreed to work together and with private sector partners to meet goals for energy security, national air pollution reduction, and climate change in ways that promote sustainable economic growth and poverty reduction. The Partnership will focus on expanding investment and trade in cleaner energy technologies, goods and services in key	Australia, China, India, Japan, Republic of Korea, United States

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		market sectors.	
	Sustainable Development Technology Canada (SDTC) http://www.sdtc.ca/	A not-for-profit foundation that finances and supports the development and demonstration of clean technologies which provide solutions to issues of climate change, clean air, water quality and soil, and which deliver economic, environmental and health benefits to Canadians.	Government
	China Hi-tech R&D Support Programme http://www.863.org.cn/english/annual_report/annual_repor_2001/200210100030.html	This successful program provides financial and policy support to R&D, demonstration and deployment of sustainable energy and clean coal technologies.	Government, industry, financial institutions, research institutes
Lack of financial resources and investment	**Methane to Markets Partnership** www.methanetomarkets.org http://webapps01.un.org/dsd/partnerships/public/partnerships/1551.html	This public private partnership is more effective than previous government-only efforts in leveraging resources for advanced technologies related to methane recovery from mines, landfills and oil and gas systems.	17 governments and various organizations with experience in methane recovery
	Central America- Clean Energy Financing in Central America	Creating confidence within local banks is essential to financing clean energy projects. If successful, then financing can readily be scaled-up and the fund design adapted for other developing markets and small- to medium-scale infrastructure projects.	E+CO, Inter-American Development Bank, USAID, Central Bank for Economic Integration, BIO, FinnFund and the Triodos Renewable Energy for Development Fund.
	Generation IV International Forum http://gif.inel.gov/	Ten countries are working together to lay the groundwork for the fourth generation nuclear reactor. The next generation of nuclear energy systems - generation IV. - must be licensed, constructed and operated in a manner that will provide a competitively priced supply of energy. They must consider an optimum use of natural resources, while addressing nuclear safety, waste and proliferation resistance and public perception concerns of the countries in which those systems are deployed.	(members of Forum) Argentina, Brazil, Canada, Euratom, France, Japan, Republic of Korea, South Africa, Switzerland, United Kingdom, United States
	South Africa -Efficient Use of Energy and Water in Municipal Water Utilities in South Africa http://www.usaid.gov/our_work/economic_growth_and_trade/energy/urban_energy/pubs/ps/safrica_watergy.pdf	Improved water pressure management, leak reduction, biogas capture from waste treatment and auto-generation of electricity are measures that can significantly enhance water sector efficiency.	Alliance to Save Energy, USAID, local authorities
Lack of technology transfer to developing countries	**U.S. Environmental Protection Agency's Voluntary Methane Program**	Improved technical reliability of anaerobic digesters, growing concern of farmers about environmental quality,	US Environmental Protection

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
	www.epa.gov/methane/voluntary.html	an increased number of state and federal programs funding programs, and new state energy policies designed to expand renewable energy have combined to rapidly ramp up methane capture in agriculture.	Agency, farmers
	Carbon Sequestration Leadership Forum http://www.cslforum.org/	The Carbon Sequestration Leadership Forum is an international climate change initiative that is focused on development of improved cost-effective technologies for the separation and capture of carbon dioxide for its transport and long-term safe storage. The purpose of the CSLF is to make these technologies broadly available internationally; and to identify and address wider issues relating to carbon capture and storage. This could include promoting the appropriate technical, political, and regulatory environments for the development of such technology.	(members of Forum) Australia, Brazil, Canada, China, Colombia, Denmark, European Commission, France, Germany, Greece, India, Italy, Japan, Republic of Korea, Mexico, Netherlands, Norway, Russian Federation, Saudi Arabia, South Africa, United Kingdom, United States
Energy Efficiency A21.9.12 (c), (e), (h), (i), (j), (k), 9.15 (a), (b); JPOI 20 (b), (h), (i)			
Lack of market incentives for energy efficiency	**Efficient Lighting Initiative in Poland, Argentina, Czech Republic, Hungary, Latvia, Peru, Philippines, South Africa, Vietnam-** http://www.ifc.org/ifcext/enviro.nsf/Content/EfficientLighting	Applying a range of measures (public education, standards, financial incentives, linking with utility DSM programs, credit, etc) is the most effective way to transform a market to higher efficiency.	Governments, IFC, partnerships, manufacturers, electric utilities, retailers, lighting professionals, and designers
	The Czech – German Initiative on Environmental Tax Reform (ETR) in the Czech Republic, experiences about to be transferred to Poland and Estonia http://www.czp.cuni.cz/ekoreforma/EDR_disseminace/english.htm	Through a cycle of workshops (bringing together the German and the Czech stakeholders) between 2003-2006 the societal support was created for the introduction of an ETR. The market-based incentives for more employment and for more energy efficiency and renewables has turned out to be very successful in Germany hence there is broad interest from abroad to benefit from these experiences by creating similar incentives.	Governments, community organizations (major stakeholders of the society as trade unions, industry etc.), private sector
Lack of public sector awareness and organizational incentives for energy efficiency	**Hungary: Public Sector Energy Efficiency Programme** http://www.un.org/esa/sustdev/csd/casestudies/e3_e11_hungary.pdf	Over 700 energy audits of municipal institutions have provided a clear picture of municipal energy consumption and have proven to be a crucial tool in implementing a municipal energy rationalisation strategy and investment program.	Government, Energy Centre Hungary, UNDP, 14 NGOs and for-profit companies; national and international municipal associations, energy service companies
	German Energy Agency (dena) http://www.deutsche-energie-agentur.de/page/index.php?id=717&L=4	The German Energy Agency – dena was founded as a competence centre for energy efficiency. Its objective is to promote pioneering approaches to and achieve provable successes in increasing energy efficiency. Examples of activities: Initiatives on efficient electricity	Government, German Development Bank (KfW)

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		use, coordination of energy efficiency pilot projects within the building sector, international cooperation and capacity building for energy efficiency within several countries.	
	Promoting an Energy-efficient Public Sector (PEPS) www.pepsonline.org http://webapps01.un.org/dsd/partnerships/public/partnerships/1416.html	By focusing government investment, procurement, and operating practices on energy-efficient buildings, products, and services, the public sector can create a strong, sustained, buyer-led shift in the market toward energy efficiency.	Lawrence Berkeley National Laboratory, USAID, international NGOs, governments, local authorities
	Belgium- FEDESCO-Federal Energy Service Company http://www.cidd.fgov.be/fedesco/fedesco.htm	The Belgian Federal Plan for Sustainable Development, spanning the period 2004–2008, calls upon the Government to lead by example and reduce the environmental impact of its own operations. In this context, the Belgian Federal Investment Company established a public limited company, FEDESCO, to provide third-party financing for energy efficiency improvements in buildings, focusing initially on Government buildings. To this end, FEDESCO sponsors energy audits to identify potential interventions and provides pre-financing to carry them out. FEDESCO clients are required to earmark all savings resulting from energy efficiency gains for reimbursing the costs FEDESCO incurs, which ensures that there is an incentive for both parties to achieve the maximum gains in the shortest time possible.	Government
Weak regulatory framework for energy efficiency	**Collaborative Labeling and Appliance Standards Program (CLASP)** http://www.clasponline.org/main.php http://webapps01.un.org/dsd/partnerships/public/partnerships/179.html	Standards and labeling programs can produce very large energy savings, can be very cost effective, treat all manufacturers equally, and the resulting energy savings are generally assured, comparatively simple to quantify, and readily verified.	Collaborative Labeling and Appliance Standards Program (NGO), governments, foundations, USAID, MGs, UN agencies
	Australia - Improving Appliance Energy Efficiency http://www.energyrating.gov.au/rf1.html	The Equipment Energy Efficiency Programme (EEEP) is a collection of coordinated end-use energy efficiency programs in Australia and New Zealand. The main tools are mandatory Minimum Energy Performance Standards (MEPS), energy efficiency labeling (enforced by law) and voluntary measures, including endorsement labeling, training and support to promote the best available products. A combination of strong policy initiatives and	

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		industry consultation has led to improved consumer awareness regarding energy consumption of refrigerators and freezers.	
	Energy Star Product Labeling http://www.energystar.gov/ http://www.energystar.gov/ia/news/downloads/annual_report2004.pdf	There is a large potential for cost-effective energy efficiency that is not being fully realized in businesses and households due to a number of informational, institutional and practical obstacles that hinder greater investment.	US EPA,US DOE, manufacturers, retailers, utilities, states, home builders, etc.
	Poland – Energy Efficient Building Codes http://www.worldenergy.org/wec-geis/publications/reports/eepi/a1_newbuildings/a1_newbuildings.asp	Very significant thermal renovation of existing houses lead to decline in energy consumption. This was encouraged by provision of subsidised credits for renovations and removal of oil price subsidies, and was hindered by high interest rates for credit.	Government, engineering and architecture associations
Lack of financing for energy efficiency projects	**Hungary- Support to ESCO industry** http://econolerint.com/en/PDF/HUNGARY_ESCO_final.pdf	Energy sector restructuring, good institutional and banking sector reforms and structured aid programs can lead to important positive results in countries in transition in the energy performance contracting business. Energy service companies (ESCOs) and third party financing can play an important role in achieving energy efficiency goals if a nurturing business environment is provided.	Government, International Finance Corporation and GEF, financial institutions, ESCO industry association
	Bulgaria-Credit Facility for Municipal Energy Efficiency http://www.un.org/esa/sustdev/csd/casestudies/DCA_usa.pdf	Special credit facilities are needed where conditions are not yet suitable for commercial lending and, where successful, can leverage large lending programs of IFIs.	United Bulgaria Bank, USAID, local authorities, ESCOs and IFIs
	Mexico-Innovative Financing for Energy Efficiency http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/2962/1/images/17_esmapnadbank.pdf	It is useful to have development banks take the first step with a clear strategy of moving to commercial lending of EE projects after proof of concept.	US-DOE, World Bank ESMAP, North American Development Bank, SENER, CONAE, Mexican NGOs
	United States - Energy Efficiency Industry Partnership Program (EEIP) of the Alliance to Save Energy in Thailand http://www.ase.org/content/article/detail/612	The Alliance's program in Thailand centers on providing technical, strategic, and fundraising assistance to both new and established NGOs. The Alliance assists energy efficiency and related organizations to develop concise mission statements and strategic plans, identify key legislative issues impeding the spread of energy efficiency, and leverage funding from multilateral, bilateral, and foundation sources.	Government, international partnership

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
Legal and institutional impediments to transferring technology	**Watergy: Taking Advantage of Untapped Energy and Water Efficiency Opportunities in Municipal Water System** http://www.watergy.org/resources/publications/watergysummary.pdf http://webapps01.un.org/dsd/partnerships/public/partnerships/1286.html	Large water and energy savings can accrue from relatively low cost investments. Where local capacity and access to capital is limited, new financial mechanisms can be successfully adapted.	Alliance to Save Energy, USAID, local, state, and national government bodies; water utilities; private equipment suppliers and service providers; local NGOs and partner contractors.
Inefficient transport sector	**UK-London Green Transport Strategy** http://www.camden.gov.uk/ccm/content/transport-and-streets/transport-strategies/camdens-green-transport-strategy.en	The strategy has been successful in reducing road traffic, supporting public transport, cycling and walking as transport options, and promoting substitution by cleaner fuels.	London Borough of Camden – a UK local authority
	New Energy Efficient Technologies in Transportation: The Hybrid Car http://www.hybridcars.com	The purchase of more fuel efficient hybrid vehicles is a function of consumers' sensitivity to high gasoline prices, government incentives and mandates.	Automobile manufacturers, consumer organizations
Low public awareness	**China Energy Conservation Week** http://www.chinacp.com/newcn/chinacp/setc-rccu.htm	Every year during the first week of November, China organizes a national energy conservation week to enhance public awareness via mass media, exhibits, conferences, etc.	Government, media, NGOs, business sector

Theme: Industrial Development

Strengthen Domestic Capabilities A21.9.18; JPOI 10 (a), (c), (f)

Industrial development is not self-sustaining	**Inserting Local Industries Into Global Value Chains And Global Production Networks** http://www.unido.org/file-storage/download/?file_id=33079	Participating in GVCs and GPNs helped developing country producers to enter foreign markets, earn more foreign exchange, diversify their exports, and most importantly get new skills, knowledge and technology.	Transnational corporations, domestic industrial enterprises, Ministries of trade, trade associations, financial institutions
Industrial competitiveness is low	**Sri Lanka: Development of Industrial Competitiveness** http://www.unido.org/doc/4192	Establishment of institutional support networks for assisting entrepreneurs and training specialists in industrial production was essential for project success.	Industrial, financial and academic institutions, as well as industry associations
	Nigeria – Strengthening technical and human resources to carry out standardization, quality assurance and testing http://www.unido.org/doc/3622	The ability of small- and medium-scale enterprises (SMEs) to meet ISO 9000 standards was crucial to allow them to compete in international markets.	National standards organizations, industry associations

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
Untrained work forces in some countries	**Penang Skills Development Centre** http://www.psdc.com.my/	Public-private partnership can be effective in overcoming the incentive problems associated with firm-financed training, especially where large numbers of private firms have similar skill demands.	Public and public-private training institutions, industrial enterprises including SMEs, UNIDO, ILO
Enabling Environment A21.9.18; JPOI 10 (a), (d), (e)			
Unfavourable business climates in some countries	**Mexico: Starting a Business** http://www.doingbusiness.org/documents/DB_Mexico_English.pdf	Countries differ significantly in the way they regulate entry of new businesses. In some, the process is straightforward and affordable. In others, the procedures are so cumbersome and costly that there are strong incentives for corruption and business informality.	Government ministries of trade and industry, industrialists and researchers, and partnerships for technology transfer
Weak transportation and other infrastructure (ports, roads, rails, telecommunications)	**China: Private Financing of Infrastructure** http://www.unido.org/doc/4190	Industrial infrastructure can be successfully improved through international private investment, particularly in the energy, water supply and transportation sectors.	Government planning commissions, water and energy industries
Electricity supply inadequate for needs of industry	**Spain – Electricity Supply through Industrial Cogeneration** http://www.p2pays.org/ref/17/16372.pdf	Government can support cogeneration through offering technical advice on cogeneration projects, disseminating information on new technologies at technical conferences, round tables, cogeneration fairs, publications etc., as well as providing a share of the investment needed to implement cogeneration projects through third-party financing.	Government, research institutes, industrial enterprises, electricity regulatory bodies
	Mali – Multifunctional Platforms http://www.undp.org/energy/reducmali.htm	The acquisition of a multifunctional platform was affordable to 96 percent of the requesting communities in Mali. About 99 percent of clients are women. They buy milling, de-hulling, and/or water services once or twice a day for domestic purposes. Men's use of multifunctional platform services might typically be for welding and battery charging.	Women, youth, UNDP, UNIDO
Cleaner Industrial Production A21.9.18; JPOI 16			
High levels of industrial pollution	**Denmark – Industrial Ecology in Industrial Parks** http://www.bsdglobal.com/viewcasestudy.asp?id=77	Clustering of industries can enhance by-product synergy where one industry's waste stream can be used by another as a primary resource, creating enormous potential for reducing waste volumes and toxic emissions to air and	Industrial parks, local authorities

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		water, as well as cutting operating costs.	
	Chile – Cleaner Production in the Textile Industry http://www.bsdglobal.com/studiesbycountry.asp?cid=4	The resulting environmental benefits included water, energy and chemical conservation, and reduced emissions and effluent-borne solids. Most of the measures adopted had payback periods of two years or less.	Textile companies
	Australia - Opportunities and Challenges of Industrial Symbiosis: The Kwinana Industries Council (KIC) http://www.kic.org.au/	In 1991, Kwinana's core industries established the KIC to organise air and water monitoring collectively for local industry in response to increased government and community expectations as well as safety considerations. KIC has since evolved into a coordinating body that assists and promotes industrial symbiosis in the area. The KIC is also contributing to research to identify further examples. Industrial symbiosis harnesses market forces to deliver economic and environmental benefits. However, there are a number of factors which are preventing markets from utilising the concept of industrial symbiosis to its full potential. These include a lack of information, transaction costs and institutional arrangements. This highlights the importance of having a body such as the Kwinana Industrial Council to act as a broker to tackle these market impediments, to contribute to ongoing research, and to share experiences of the challenges and opportunities of industrial collaboration.	Private sector, government
	Australia - Datong Cleaner Environment Project, China http://www.ausaid.gov.au/	To improve the environmental and economic management of China's Datong Coal Gasification Corporation plant in order to reduce greenhouse gas emissions and improve the efficiency of the plant. The project has provided a sound basis for the long-term sustainable development of water resources. Improved water standards have helped to raise the quality of life of the local community. This project has exceeded expectations, largely through the production of a breakthrough technology that can be applied far beyond the reach of the project. This technology has been supported by the development of policies, strategies and procedures at a local and regional government scale.	Governments
Limited capacity of SMEs to finance pollution control technology	**Morocco – Improving Technology Transfer to SMEs** http://www.wbcsd.org/plugins/DocSearch/detail	Instead of further burdening the limited resources of SMEs, it is important to promote technologies linked to eco-efficiency in a way that encourages business to search for environmental improvements that yield parallel	Chemical companies, SMEs, UNIDO, UNEP

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
	s.asp?type=DocDet&ObjectId=MTY3NTM	economic benefits.	
Poor hazardous waste management	**Reducing Hazardous Waste in Industry** http://www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=MTc5NTY	In response to rising hazardous waste treatment and disposal costs, often the most efficient approach is to reduce the volume of hazardous waste. This should be an integral part of the management cycle, with emphasis on precautionary measures.	Private corporations, industry associations, NGOs, local authorities
	Global Partnership for Capacity Building to Implement the Globally Harmonized System for Chemical Classification and Labeling http://www.unitar.org/cwg/ghs_partnership/index.htm http://webapps01.un.org/dsd/partnerships/public/partnerships/210.html	Capacities should be strengthened at all levels, in particular in developing countries, to ensure a higher degree of chemical labeling and related precautionary measures for industrial chemicals, agricultural chemicals, chemicals in transport and consumer chemicals.	Governments, UN agencies, international programmes on chemical safety and chemical hazards, industry associations, trade unions
Corporate Social Responsibility A21.4.19, 4.26; JPOI 18			
Lack of corporate environmental social responsibility and accountability	**UK- Donetsk Business Commitment to the Environment** http://www.pece.co.uk/en/documents/pecelaunch-groundwork.pdf	Eco-efficiency offers a lucrative entry point for corporate social responsibility. It is achieved through the delivery of competitively priced goods and services that satisfy human needs and bring quality of life while progressively reducing environmental impacts of goods and resource intensity throughout the entire life-cycle to a level at least in line with the Earth's estimated carrying capacity.	UK DEFRA, Local Government International Bureau, Donetsk Chamber of Commerce and Industry (DCCI), and local NGOs
	VadeRegio - A European Project "How Regional and Local Authorities can promote Corporate Social Responsibility" http://www.agenda-scotland.org/documents/EU-CSR-Vaderegio-Report.pdf	The exchanging of information on CSR in relation to local governmental bodies and deeper analysis of what works and why was seen as important for successful implementation of regional and national CSR-policies. Activities such as sustainable public procurement, and public education were seen as prospective "first picks" in many regions.	Scotland-AGENDA, Novia Salcedo Foundation, Trivisi Project, and Euro Associazione
	Sweden – Recycling through a Product's Life Cycle Value-Chain http://www.bsdglobal.com/viewcasestudy.asp?id=65	Electrolux believes its investment in Natural Step initiatives has been the best financial investment it has ever made. It entails an assessment of the value added or lost at each stage of production, use, and disposal or recovery. The company's aim for the future is production where product take-back is the norm.	Industrial enterprises

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
	Australia - Queensland Environmental Protection Agency's (QEPA) ecoBiz Program http://www.epa.qld.gov.au/environmental_management/sustainability/industry/ecobiz_queensland/	An industry partnership program designed to provide businesses with methods to scrutinise inputs, internal processes and outputs of the business in pursuit of environmental and economic efficiencies.	Private sector, government agencies
	USA – Dupont Corporate Social Responsibility http://www.bsdglobal.com/viewcasestudy.asp?id=123	One of Dupont's core CSR strategies is engaging stakeholders on global issues that affect its work. It has formed partnerships with the World Resources Institute, the Environmental Defense Fund, the Pew Center for Global Climate Change and the Keystone Center.	Industrial enterprises, NGOs, Foundations, research institutes

Theme: Air pollution/atmosphere

Promoting Environmental Controls A21.9.8, JPOI.56

Weak policy framework for air pollution control	**Sub-Saharan Africa- Initiative for phase-out of leaded gasoline in SSA** http://www.cleanairnet.org/ssa/1414/article-33978.html http://www.cleanairnet.org/ssa/1414/article-69331.html	The importance of government leadership and of including all relevant stakeholders in making the decision to go unleaded and in developing comprehensive strategies to do so.	NGOs, international development agencies, local authorities, World Bank, Nordic Trust Fund, WHO, USAID
	Bangladesh Clean Cities Initiative http://www.eere.energy.gov/cleancities/bangladesh.html	Introducing alternative fuels such as CNG in urban transport requires effective regulatory environments, appropriate fiscal and financial incentives, integrated market development, adequate infrastructure and public awareness campaigns.	U.S. DOE, U.S. AID, Bangladesh Ministries, local authorities
Lack of knowledge about pollution control technologies	**Nepal – Vertical Shaft Brick Kiln Technology Transfer Program** http://www.bsbknepal.com	Emission from the brick kilns are the major source of pollution in the Kathmandu Valley. The introduction of Vertical Shaft Brick Kiln technology results in the consumption of 40% less energy and emits 90% less pollution as compared to existing brick firing technologies in Nepal. One lesson learned is that a major problem of any technology transfer is the uneven spread of costs among early starters. It is often difficult to find pilot entrepreneurs who are willing to take over the higher risks. Therefore, a technology transfer has to	Government of Nepal, Swiss Agency for Development and Cooperation; private sector, NGOs and CBOs

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		reduce initial costs and risks to get technology started.	
Lack of public awareness regarding health risks of pollution	**Indonesia- Lead Information Center (Partnership for Clean Fuel and Vehicles)** www.Kpbb.org http://webapps01.un.org/dsd/partnerships/public/partnerships/178.html	Lack of public awareness about the dangers posed by leaded gasoline is a significant obstacle to change. Public outreach campaigns, once implemented, can be easily scaled up and transferred from one region or target audience to others.	U.S. Environmental Protection Agency, USAID, Joint Committee for Leaded Gasoline Phase Out, Partnership for Clean Fuels and Vehicles, Indonesian Ministry of Environment
Urban and Indoor Air Pollution A21.9.8; JPOI.39 and 56			
Limited use of cleaner fuels	**Mexico City- Heavy-Duty Diesel Retrofit (Partnership for Clean Fuelss and Vehicles)** http://www.unep.org/pcfv/Regact/LAC/LAC.htm http://webapps01.un.org/dsd/partnerships/public/partnerships/178.html	Setting up a senior-level, multi-stakeholder planning process through an advisory board and technical committee helped advance project development and operation.	Government of Mexico City, USAID, USEPA, local transport authorities, WRI/Embarq, industry, NGOs and academia
	Brazil – Ethanol from sugar cane http://proquest.umi.com/pqdweb?index=6&did=776775451&SrchMode=1&sid=4&Fmt=3&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1140472553&clientId=1865#fulltext	The use of biofuels, such as ethanol, can significantly increase employment opportunities in rural areas and agribusiness. The use of ethanol in Brazil has resulted in complete elimination of lead additives in gasoline and reduced greenhouse gases emissions.	Government, agricultural community, MGs, industry
	Improving the Quality of Australian Transport Fuels http://www.deh.gov.au/atmosphere/fuelquality/publications/mce.html	The success of Australia's fuel standard initiatives is based on strong policy settings and awareness of technological development. Consultation was vital in developing and implementing fuel standards – without an understanding of the importance of the issue, it is difficult to gain public and industry support. As the impacts of transport pollution and emissions are global in nature, it is essential to assist other countries and harness available resources and expertise in order to achieve the goals of reducing air pollution and greenhouse gas emissions.	Government, private sector
Continued use of inefficient and un-vented cook stoves	**South Africa - LP Gas Rural Energy Challenge** http://www.wbcsd.org/templates/TemplateWBCSD4/layout.asp?type=p&MenuId=OTQw&doOpen=1&ClickMenu=LeftMenu http://webapps01.un.org/dsd/partnerships/public/partnerships/197.html	The partnership attracted high-level government officials and key officials fromthe local LP Gas supply industry and led to a clearer identification of needs and roles of the public and private sectors.	Government, World LPG Association, UNDP, local authorities, consumer groups

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
	Pakistan- Fuel-Efficient Smokeless Stoves, http://sgp.undp.org/download/SGP_Pakistan1.pdf	Previous government and donor programs overemphasized technology, without considering the need to affect behavior change and to address market access and health impacts. The role of women in stove diffusion and the use of local construction materials were two factors leading to program success.	NGOs, women, foundations, community-based organizations.
	Bangladesh and Peru- Integrated Program Models for Cleaner Cooking in Bangladesh and Peru- http://www.usaid.gov/our_work/economic_growth_and_trade/energy/urban_energy/pubs/ps/global_indoorair.pdf	By utilizing more efficient stove and ventilation technologies, switching fuels and changing cooking practices, poor women can significantly reduce indoor air pollution and its consequent health impacts.	USAID, Winrock International, local NGOs and financial institutions.
	China and India - Searching for sustainable solutions to indoor air pollution http://www.wbcsd.org/includes/getTarget.asp?type=DocDet&id=16163	The most successful pilots use a public-private model that combines centralized component production, quality control and supply-chain management with decentralized installation and assembly of products, linked to a network of social service providers (such as local NGOs), which provide the link to communities, social marketing and awareness raising.	Shell Foundation, NGOs, Government agencies
Capacity Building for Improved Monitoring and Management A21.9.8; JPOI.38 (g), (h)			
Lack of capacity for air quality management in cities	**Cities – Clean Air Initiative** www.cleanairnet.org	City-wide action plans addressing in an integrated manner air pollution, poverty, health and emission control measures are successfully improving policies, regulatory frameworks and enforcement.	Local authorities, international development agencies, NGOs, academia, private sector
	Cities-World Carfree Day http://www.worldcarfree.net	A well-planned Car Free Day provides a practical demonstration of how quality of life can be improved in a city centre through active involvement of government, businesses, NGOs and citizens working together.	Local authorities, NGOs,
Lack of information on transboundary air pollution from ozone, particulates and persistent organic pollutants	**Convention on Long-range Transboundary Air Pollution** http://www.unece.org/env/lrtap/	The success of the Convention may be found in the way that it works: science and technology networks; science-policy interaction; focus on innovative solutions for environmental problems that allow differences in national policies; and a lean bureaucracy with most work undertaken by lead countries or by programme centres.	Governments, UN-ECE
	Air pollution policy in effect in the European Union http://europa.eu.int/comm/environment/air_en.ht	Air pollution directives presently apply to stationary sources (including energy plants and industry), mobile sources and products. National emissions ceilings to cap	UN-ECE Convention on Long-Range Transboundary Air Pollution, governments, industry, NGOs

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
	m	total emissions have been set and air quality standards as well as policies on transport modes such as shipping are in effect. The involvement of the stakeholders in the programmes and in the preparation of legislation has been a key factor in its success. A major lesson learnt is to consider all sectors that contribute to the problem so that cost effective measures can be taken.	
	Australia – Ozone Protection http://www.deh.gov.au/atmosphere/ozone/	Australia's strong policy and legislative settings have led to a very successful phaseout of ODS and improved management of SGGs. Australian industry are strong supporters of this approach and have worked closely with the Australia Government to develop the consistent requirements for SGGs and end use controls to minimise emission of these ODS and SGGs. The industry was closely consulted in the 2001 review of the *Ozone Protection Act 1989*, in developing the amended legislation and end use controls for refrigeration and air conditioning, fire protection and methyl bromide fumigation, and will continue to be involved as the remaining end use controls are developed. Australia's international involvement, particularly through contributions to the multilateral fund of the *Montreal Protocol*, has also assisted other countries in the global phaseout of ODS.	Government
	Australia - National Halon Program, India http://www.deh.gov.au/atmosphere/ozone/ods/halon/index.html#strategy	To decrease the impact of halons on the ozone layer by assisting India in developing a National Halon Management and Banking Program. This program has illustrated the need for strong national policy frameworks in order to assist countries to develop environmentally sustainable capabilities. In this case, strong technical and policy support has enabled the project to be completed successfully.	Governments
Impacts of air pollution and future risks of different development pathways are not always clear	**BenMAP International-Model to Estimate health Benefits of Air Quality Improvement** http://www.epa.gov/ttnecas1/benmodels.html	Emphasize follow-up and technical assistance after training sessions to support incorporation of findings into urban air pollution strategies and mitigation efforts.	USEPA, governments (national and regional), academic institutions, research institutes,
	Clean Air For Europe (CAFÉ) and a Thematic Strategy on Air Pollution http://europa.eu.int/comm/environment/air/cafe/index.htm	The CAFE program has been highly successful in using the knowledge base approach to analyse policy options for air pollution control. An important lesson learnt has been the importance of consultation with all affected stakeholders and the provision of free and open access of	Governments and national authorities, industry, NGOs

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		information for all stakeholders in the process.	

Theme: Climate Change

Mitigation Efforts A21.34.18, 34.22; JPOI.38

Insufficient mitigation measures	**China- Energy Efficient Refrigerators** http://www.un.org/esa/sustdev/csd/casestudies/e3_c3_China.pdf	The combination of measures to "push" manufacturers toward technological innovation and "pull" consumers through public education programmes greatly increased both energy savings and GHG reductions.	China State Environment Protection Administration , GEF, UNDP, UN-DESA, industry, NGOs, Media companies
	Bulgaria – Pleven District Heating Company – AIJ project http://www.rec.org/Climate/casestudies/CaseStudies.PDF	Two lessons learned for project success**:** Involve the public and key stakeholders in establishing criteria for selection and development of projects; Take steps to improve the investment climate in order to attract financing partners.	Technical organizations, research institutes, local authorities
	Local Governments – Cities for Climate Protection Campaign www.iclei.org/index.php?id=800 http://webapps01.un.org/dsd/partnerships/public/partnerships/1670.html	A campaign is composed of five milestones with an underlying methodology that provides a simple, standardized means of calculating greenhouse gas emissions, establishing targets to lower emissions, reducing greenhouse gas emissions and monitoring, measuring and reporting performance. Its flexible framework can accommodate varying levels of analysis, effort, and availability of data, which increases transferability amongst local governments and has contributed to its worldwide success.	ICLEI, over 650 local governments from all regions
	United Kingdom - Climate Change Levy (CCL) http://www.netregs.gov.uk/netregs/275207/1018642/?version=1&lang=_e	The UK government has put in place financial incentives for UK businesses to use fossil fuels more efficiently, and reduce emissions of carbon dioxide (CO2). One of these incentives is the CCL. The CCL is a surcharge on your business energy bill. The exact CCL rate depends on the type of fuel used.	Government
	U.S. Climate Change Technology Program - CCTP http://www.climatetechnology.gov/	The CCTP's multi-agency organizational structure provides an opportunity to develop, across the Federal government, a comprehensive, coherent, multi-agency, multi-year R&D program plan for the development of climate change technology, tied to specific climate change goals and objectives. As part of these activities, the CCTP will help to inform near- and long-term	Government

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		technology planning activities, including scenario analyses and visioning exercises, aided by modeling.	
	Australia - Compact Fluorescent Lamps http://www.apec-esis.org/cfl/www/	The goal: To reduce greenhouse gas and waste resulting from lighting by delivering higher quality and lower cost Compact Fluorescent Lamp (CFL) lighting products to consumers worldwide. What have we learnt? We have learnt that it is not enough to just develop new technologies – they need to be supported by sound national policy frameworks and international goodwill. They need strong technical support as well as policy support. They need to be accessible, available, cost effective and reliable.	Government
Slow deployment of clean technology	**Iceland commits to hydrogen economy** http://www.un.org/esa/agenda21/natlinfo/countr/iceland/energy.pdf	Countries with abundant renewable energy resources can use them to economically produce hydrogen and thus speed the transition to a clean hydrogen-fuelled economy.	Government, industry, academia, research institutes, electric power utilities
	Romania - Sawdust 2000, Fuel Switching Project http://unfccc.int/files/meetings/cop_10/at_the_kiosk/07_dec_tuesday/application/pdf/trusca_2004.pdf	Results include: illegal dumping from wood processing industry was curtailed; reduction of heat energy prices; development of business opportunities in wood waste and biomass energy; five towns have operational District Heating systems, CO2 reductions of 700K Emission Reduction Units (ERU) and Assigned Amount Units (AAU)	Danish Environmental Protection Agency (DEPA), Romanian Ministry of Environment and Water Management
Adaptation Efforts JPOI. 38			
Insufficient funding for adaptation efforts	**GEF Funding Assistance to Adaptation** http://www.gefweb.org/projects/focal_areas/climate/documents/GEF_Support_for_Adaptation_to_Climate_Change.pdf	The GEF has created 4 funds to address adaptation to climate change. They will address 3 stages, namely: planning through studies to identify vulnerabilities, policy options, and capacity building; identifying measures to prepare for adaptation and further capacity building; and promoting measures to facilitate adaptation, including insurance and other interventions.	Governments, Major Groups, UN System, IFIs
Inadequate access to adaptation technologies	**Canada – Agricultural adaptation to climate change** http://adaptation.nrcan.gc.ca/app/filerepository/F80B56D9915F465784EBC57907478C14.pdf	Assessment of adaptation options and technologies should consider six key questions: To what climate variables is agriculture most sensitive? Who needs to adapt (e.g., producers, consumers, industry)? Which adaptation options are worth promoting or undertaking? What is the likelihood that the adaptation would be	Government, farmers, water supply/irrigation experts, agriculture extension services, meteorologists, scientific community

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
		implemented? Who will bear the financial costs? How will the adaptation affect culture and livelihoods?	
Degradation of natural resources that can reduce people's vulnerability	**Increasing Community Resilience to Climate-Related Disasters** http://www.iisd.org/pdf/2003/envsec_livelihoods_1.pdf	Protecting and enhancing natural services through activities such as watershed restoration, mangrove reforestation and rangeland rehabilitation, can help poor communities secure their livelihoods and improve their capacity for adapting to the impacts of climate change.	Government, poor communities, sustainable livelihood experts, experts in environmental degradation
Uncertainty relating to timing, scale of impacts	**Monsoon Variability and impacts in the Southwest Indian Ocean** http://www.un.org/esa/sustdev/csd/casestudies/c2_2_seychelles.pdf	There is a lack of knowledge on the near equatorial convection in the region during the southeast monsoon. Many models are incorrectly predicting the transient convective waves during the southeast monsoon. There are also few studies on climate variability and its socio-economic impacts in the region.	Seychelles Meteorological Services, government, private sector, NGOs, GEF Adaptation Fund ,
Lack of integration of climate policy and adaptation actions into national sustainable development strategies	**UK – National Sustainable Development Strategy for Climate Change** http://www.sustainable-development.gov.uk/publications/pdf/strategy/Chap%204.pdf	In 2003, the UK Government committed to the long-term goal to reduce carbon dioxide emissions by some 60 per cent by about 2050 with real progress by 2020. To achieve this long term goal, it has developed a detailed strategy on how to address climate change across various economic sectors.	Government, financial institutions, private sector, NGOs, research institutes
Climate observation systems and networks need strengthening	**U.S. – Global Change Research Program: Observation and monitoring of climate systems** http://www.usgcrp.gov/usgcrp/ProgramElements/recent/obsrecent.htm	The complexity of the Earth system and the interconnections among its components make it a complex scientific challenge to document change, diagnose its causes, and develop useful projections of how natural variability and human actions may affect the global environment in the future.	Government, research institutes
Regional/Global Market-based Mechanisms for Emissions Reduction			
Weak carbon markets	**EU-Emission trading scheme** http://www.co2-info.com/eu_emission_trading.htm	Begun in January 2005, emissions trading provides an economic basis for lowering emissions. It will make sure that emissions are cut where it is cheapest and will stimulate innovation.	Governments, industry

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
Weak domestic institutional frameworks for participation in Clean Development Mechanism	**Uganda – CDM capacity building** http://www.un.org/esa/sustdev/csd/casestudies/c5_uganda.pdf	The role of the government is to establish the institutional framework for the CDM process; then awareness raising is needed in the private sector for development of CDM project opportunities.	Government, UNEP, DANIDA, private sector
Implementation arrangements for Activities Implemented Jointly (AIJ) need strengthening	**Poland – 3 AIJ projects, Fuel switching, Energy Supply, Sustainable heat and power** http://www.rec.org/Climate/casestudies/CaseStudies.PDF	Develop strategy for environmental policy implementation, adopt criteria for monitoring of JI results, encourage transparent procedures and efficiency of projects.	Governments, GEF, local authorities, energy and district heating industries
Capacity Building Needs A21.40.7, 40.8, 40.9; JPOI.38			
Gaps in climate knowledge exist	**World Climate Research Programme** http://www.wmo.ch/web/wcrp/documents/wcrpbrochure.pdf	To address the many gaps in climate knowledge, the WCRP and the larger scientific community are developing a strategy for the next decade to strengthen our knowledge and increase our capabilities with regard to climate variability and change and their prediction. This strategy is known as the Coordinated Observation and Prediction of the Earth System (COPES).	WMO, ICSU, UNESCO, scientific community
	UNFCCC Education and Outreach Program http://unfccc.int/cooperation_and_support/education_and_outreach/items/2529.php	This 5-year program aims to engage all stakeholders and major group to improve understanding of technical, economic and policy issues related to climate change	UNFCCC, governments, scientific community, Major Groups
	Caribbean Community Climate Change Centre (CCCCC) http://www.caricom.org/jsp/community/ccccc.jsp?menu=community	The Centre implements projects designed to prepare for and to reduce the harmful effects of climate change and sea level rise and seek ways in which the Community can benefit from any opportunities that may result from climate change. Additionally, the CCCC is intended to position the Region to maximize benefits from new and additional resources arising from the United Nations Framework Convention on Climate Change (UNFCC). The Centre is located at the University of Belize (Belmopan Campus).	CARICOM
Insurance markets and arrangements are inadequate to deal with stronger weather events associated with climate change	**Institutional Investors Summit on Climate Risk** http://www.unfoundation.org/features/2005_inst_investor_summit_climate_risk.asp	Investors want to protect their portfolio values against the financial risks due to the impact of climate change. But they also want to channel their capital toward any opportunities emerging from climate change and its mitigation so that they can realize a return on their investments.	UN Foundation, Financial institutions, insurers, pension funds

United Nations System
Private Sector Focal Points Meeting 2006

PARTICIPANTS LIST

"Towards Impact, Scale and Local Ownership: new tools and mechanisms for effective partnership management"

UNESCO Headquarters
Room X
7, place de Fontenoy

Paris, France
1 – 2 June 2006

Co-hosted by

UN Global Compact Office
United Nations Educational, Scientific and Cultural Organization
UN System Staff College
UN Fund for International Partnerships

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PROJECT BRIEF

1. IDENTIFIERS:

PIMS NUMBER :	**1894**
PROJECT NUMBER	URT/03/G…
PROJECT NAME	**Transformation of the Rural Photovoltaic (PV) Market**
DURATION	Five years
IMPLEMENTING AGENCY	United Nations Development Programme
EXECUTING AGENCY	RES (Renewable Energy Section), Ministry of Energy and Minerals
REQUESTING COUNTRY	Tanzania
ELIGIBILITY	Tanzania ratified the UNFCCC on 17 April 1996 (Entry into Force on 16 July 1996)
GEF FOCAL AREA	Climate Change
GEF PROGRAMMING FRAMEWORK	OP #6: Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs

2. Summary:

The project aims at reducing Tanzania's energy-related CO_2 emissions by introducing photovoltaics (PV) as a substitute for fossil fuel (kerosene) utilized for lighting in the rural areas remote from the electricity grid and at slowing down the rate of additional diesel-based captive generation or grid extension schemes for providing basic electricity services to the unelectrified rural households, specifically in the Mwanza region. In addition, the project will substantially decrease the growing number of rural poor, adults and children alike, who contract respiratory and eye problems due to prolonged exposure to kerosene smoke and soot (poor indoor air quality). The activities proposed in the project are designed to remove barriers to the wide-scale utilization of PV to meet the basic electricity needs of individual households in terms of lighting, power for a radio-cassette/TV and of community users like health clinics and schools, initially in Mwanza region, but eventually in the whole country. The project will develop local capacity to identify technical and financing options and to formulate the regulatory, institutional, financial and marketing instruments necessary to demonstrate the technical, economic, and financial viability of using the private sector as a vehicle to deliver basic electricity services to rural households and community users.

3. Costs and Financing		US Dollar
GEF	Project:	2,250,000
	PDF B:	320,000
	Subtotal GEF	**2,570,000**
Co-financing (Parallel)	Government (in kind)	147,600
	Sida PV	3,176,471

	Dutch Govt/Umeme Jua	630,000
	UNDP TRAC	240,000
	Others	540,000
	Subtotal Co-Financing	4,734,071
Total Project Financing		**7,304,071**
Associated Financing	Sida institutional	2,352,941

4. GOVERNMENT GEF FOCAL POINT:

Name: Mr. Raphael Mollel

Title: Permanent Secretary

Vice-President's Office

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LIST OF ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
AFRREI	Africa Rural and Renewable Energy Initiative
BoS	Balance of System
CRDB Bank	Cooperative and Rural Development Bank Limited (the former CRDB was liquidated and CRDB Bank was formed---the long name is not used any more)
EAC	East African Community
GHG	Greenhouse Gas
GEF	Global Environment Facility
IPP	Independent Power Producer
MEM	Ministry of Energy and Minerals
NMB	National Micofinanc e Bank
PPA	Power Purchase Agreement
PV	Photovoltaics
RAS	Regional Administrative Secretary
RDD	Regional District Director
SADC	Southern African Development Community
RES	Renewable Energy Section
SHS	Solar Home System
Sida	Swedish International Development Agency
TANESCO	Tanzania Electric Supply Company Limited
TRAC	Target for Resources Allocation from Core
UNDP	United Nations Development Programme
VETA	Vocational Education and Training Authority
WHO	World Health Organisation

Exchange rate:

1 US $ = 980 Tshs (Dec. 2002)

1 USD = 9 SEK (Feb 2003)

1. BACKGROUND AND CONTEXT

1. For people and markets located at long distances from the electricity grid, the absence of reliable and affordable renewable energy technologies for electricity generation has meant that the only possibility for the provision of electricity services is through small diesel generators. Despite many initiatives aimed at developing and utilizing renewable energy technologies, small diesel generators remain the primary supplier of small quantities of electricity to remote regions located far from the grid. And when captive diesel generation is absent, the rural households rely on kerosene (and even wood; candles are hardly used for purposes of providing light) for lighting and dry cells/batteries to power their radio-cassettes/TV. In addition to the respiratory and eye problems associated with prolonged exposure to kerosene smoke and soot (poor indoor air quality), continued reliance on kerosene for lighting also results in the ever-increasing emission of greenhouse gases. Recent advances in the renewable energy field, especially in PV, have meant that some of these remote areas can now be provided with clean electricity services through renewable energy on a least-cost basis.

2. Rural electrification has been an important component of the national development agenda for Tanzania since independence in December 1961. However, the high costs of rural electrification programmes have been a formidable barrier over all these years, with the result that less than 10% of the total population of about 34.56 million has access to grid electricity services. The situation is worse in the Mwanza region, when compared to the national average: only 5.9% of the total population of 2.94 million in this region have access to grid electricity. Nationally, some 75% of the population live in rural areas, but only 1% of the rural population have access to electricity services. Therefore, the task that lies ahead is formidable.

3. There are little prospects that financial resources will become available and economic viability will encourage the national electric utility, TANESCO, to undertake electrification of even 20% of the rural households in the foreseeable future. In fact, the present process of restructuring that will lead to the privatisation of TANESCO in 2004 has slowed down expansion of the distribution system to serve the rural areas and a privatised TANESCO itself might slow it down further, as investment decisions will be made more on the basis of return on capital rather than on political considerations.

4. Over the last few years, Tanzania has made several policy changes in the energy sector. High on the Government's agenda is the restructuring and eventual privatisation of TANESCO, being undertaken by the Presidential Parastatal Sector Reform Commission; the setting up of a regulatory body, the Energy and Water Utilities Regulatory Authority, the revising of the Electricity Ordinance, these will lead to preparation of a bill for deregulation, licensing for Independent Power Producers, regulations for unbundling of the electricity sector into private generation, transmission and distribution utilities, etc. Also, as of 1 July 2001, the Government granted exemption on all import duty on PV panels, but the 20% value added tax (VAT) on these panels is maintained. The other components of a PV system have, however, not yet benefited from a similar measure of 10-20 % import duty exemption (the amount of import duty varies from component to component).

5. For its part, the Ministry of Energy and Minerals (MEM) has developed revised the National Energy Policy document, in consultation with various stakeholders including a special committee of the Parliament. This document has been reviewed and cleared by the Inter-Ministerial Technical Committee and was approved by Cabinet in February 2003. Several strategic objectives for the energy sector are defined in the policy document, viz. to

reduce the fossil fuel dependency for isolated grids and remote locations, to promote private participation in the energy sector, to introduce energy efficiency and conservation measures and to study the potential role of renewable energy, particularly in rural electrification initiatives. With regard to rural energy, the strategy for implementing the policy calls for the setting up of a Rural Energy Agency and a Rural Energy Fund.

6. MEM---through its Renewable Energy Section (RES)---launched a small project, under the World Solar Programme, to study the potential of PV to meet the basic electricity needs of remote communities. In this connection, with funding and technical support provided by UNESCO, RES installed a 2.5 kWp PV system at Mangaka, Masasi district in Mtwara region to supply PV electricity, to village amenities consisting of a secondary school, dispensary and a police post. The objectives were to investigate the conditions under which decentralised rural electrification through PV could be both technically feasible and economically viable. This study was completed in 2000 and recommended a thorough investigation of the barriers to PV utilisation for meeting the basic electricity needs of rural communities in the country.

7. In addition, with support from UNDP and UNIDO, MEM implemented a study entitled "A Framework for a National Programme to promote Renewable Energy Technologies and Energy Conservation in Tanzania" in 1998. The objectives of this study were to develop "a national programme on the application of renewable energy and energy conservation" and were intended to assist MEM in identifying the priority areas and to provide stimulus to discussion for all stakeholders to participate in the revision of energy policy in Tanzania. Again in 1998, Sida supported MEM in the implementation of a "Tanzania Rural Energy Study" with the objective of identifying "feasible projects that could improve the energy situation for people in rural Tanzania".

8. Following the above initiatives, GEF approved a PDF B Project "URT/00/G43: Removing Barriers to the Transformation of the Rural PV Market in Tanzania" in February 2001. The main objective of this project, which led to the formulation of the present brief, is " to remove barriers to the growth of the rural market for photovoltaic (PV) equipment in Tanzania, thereby reducing the reliance on fossil fuels and reducing greenhouse gas emissions, while improving the quality of life of the rural population". The project is designed to review the status of the rural market for PV, identify barriers to its sustained growth and formulate a full-scale programme to remove the identified barriers, thus providing a boost to the PV market, with the aim to meeting the electricity needs of rural communities located away from the grid. Initially, activities would focus on one region of the country, Mwanza. It was also expected that the results of the PDF B would provide useful data that would assist the Government in identifying the potential barriers to the development and utilisation of PV for electricity generation in the other regions of Tanzania. This preparatory phase was conducted with a view towards presenting a full-size project for GEF funding.

9. Through implementation of the PDF B, the barriers to the utilisation of PV to meet the basic electricity needs of rural communities in the Mwanza region were identified as indicated in the Table below,.:

Barrier	**Degree of Importance**
Limited awareness of, and experience with PV technology and 12 VDC appliances. Energy is a low priority area among users.	Major barrier
Inadequate business knowledge and capacity for distribution, aggressive marketing and sales of 12 VCD appliances and PV systems.	Major barrier

Limited technical knowledge of proper sizing, installation, operation and maintenance.	Major barrier
High cost of doing business	Major barrier
High cost of solar systems, initial capital investment and operation and maintenance.	Major barrier
Low purchasing power of the rural people	Major barrier
Lack of established dealer network	Secondary barrier
Lack of solar PV standards and poor /inappropriate installations.	Secondary barrier
Policy implementation	Secondary barrier
Difficult access to finance for suppliers (importers, dealers, etc.)	Secondary barrier
Difficult access to finance for end users	Secondary barrier

9. To overcome these barriers, the present full project will establish a project to transform the rural PV market in Tanzania, utilising the private sector as a vehicle for providing basic electricity services from PV in the Mwanza region. As part of the PDF-B, surveys were carried out to determine the size of the market for PV for both residential and community users. . This full project will seek to implement as large a share of PV-based rural electrification as is considered feasible. The activities proposed for implementation in the full project are in line with the recommendations of the September 2000 GEF Marrakech workshop "Making a difference in emerging PV Markets: Strategies to promote PV energy generation", especially with regard to PV service businesses, financing, standardised quality products, creative partnerships, etc.

10. For the full project, the GEF will contribute towards the incremental costs in order both to encourage the adoption of PV technology for providing rural electricity services and to establish a replicable framework for future projects in the rural electrification sector. Thus, the proposed demonstration investment project is designed not only to demonstrate the sustainable use of PV in the Mwanza region, but also to provide a framework that can be pursued to further promote PV-based electricity generation in the other regions of Tanzania.

Prior and/or Ongoing Assistance

11. In addition to the GEF PDF B for the rural PV market that led to the formulation of this brief, UNEP implemented in 1997 a study on "Sources and Sinks of Greenhouse Gases in Tanzania" with financial support from GEF and the International Development Research Centre of Canada. This study prepared an inventory of GHG emission by sources and removal by sinks in the various sectors of the economy.

12. Moreover, UNEP has recently secured GEF PDF-A funds to implement a regional study entitled "Building Sustainable Commercial Dissemination Networks for Household PV Systems in Eastern Africa" that will target Eritrea, Ethiopia, Kenya, Tanzania and Uganda. The objectives of the UNEP/GEF Regional Solar PV Program are to promote the Kenya business model in the region, and also to share experiences between players in the region. . Kenya has the most active commercial PV market in the developing world. More than 20,000 PV SHS are bought each year in the country, and a bulk of the equipment is manufactured locally. There are over 500 shops which sell PV product and more than 1000 technicians that participate in the market. Consumers can obtain PV panels, batteries and 12

volt dc appliances from hundreds of shops at competitive prices. In Tanzania, this project will be active in Iringa The UNDP project will actively collaborate with the UNEP project.

13. In Tanzania, there are several other ongoing GEF-supported initiatives that may benefit from the results of this project, and which the project might learn from. They are mainly in biodiversity and international waters. Among these are: URT/97/G31: New approaches to reducing biodiversity loss at Cross Border Sites in East Afric a ($ 3,378,600); URT/00/G35: Jozani/Chwaka Bay National Park development ($ 745,000); URT/00/G31: Mnazi Bay Marine Park ($ 1.5 million); RAF/01/G41: Lake Tanganyika Management Planning Project (PDF-B $ 599,000); URT/00/G41: Conservation of Forest Biodiversity Resources in the Eastern Arc Mountains of East Africa (PDF B –$ 75,688); URT/97/G42: Conservation of coastal forests biodiversity in Tanzania (PDF A--$ 22,969); URT/97/G43: Conservation of biodiversity of Great Rift Valley Lakes ($ 28,150); GLO/99/G43: Nile River Basin Initiative ($ 350,000); the Small Grants project URT/95/G32 aimed at enhancing the contribution of households and communities to conserve biodiversity, mitigate global climate change and protect international waters ($ 400,000) and Conservation of the Selous-Niassa Game Reserve corridor through community based interventions (PDF A--$ 13,000). All these initiatives are mainly directed towards conserving forest or marine biodiversity hotspots while simultaneously catering to the needs of local communities.

2. RATIONALE AND OBJECTIVES

Rationale

14. TANESCO is contemplating the formulation of a rural electrification master plan for the whole country. This will, of course, include the Mwanza region, but TANESCO's corporate priority is to electrify district headquarters and large towns over villages, even if these are close to the grid. The problem is compounded by the fact that most houses, even those located along the low voltage distribution grid, do not meet the construction standards for electricity connection.

15. The Mwanza region has seven districts. The number of households in each district and the percentage of those connected to the grid are provided in Table 1 below:

Table 1: Household Distribution in Mwanza Region *in 2000

District	Number of HH (2000*)	Electrified HH (Feb. 2002)	Percentage connected
Magu	68,662	827	1.2%
Ukerewe	33,107	-	0.0%
Geita	110,702	-	0.0%
Sengerema	63,524	735	1.2%
Kwimba	47,782	424	0.9%
Missungwi	39,400	778	2.0%
Mwanza	59,043	22,193	37.6%
Total	420,029	24,957	5.9%

*Results of the population census held in August 2002 are not yet available

16. Table 1 above shows that only 5,9% of the total households (each household consists of an average of 6.5 persons) in the Mwanza region were connected to the grid in 2002. In 2000, as per the region's projections, there were 295,917 rural households (out of a total of 420,029) that were too far from the grid and could not realistically expect to have access to grid electricity services over the next 15-20 years. The future does not look any brighter: the projection is that in 2005 and 2010 there will be, respectively, 321,148 households (out of 458,782 households) and 382,177 (out of 545,967 households) located too far from the grid to benefit from it within the next 15-20 years. This will result in further exacerbating the situation, as it is not expected that grid-connected rural electrification will even keep pace with the projected population increase.

17. The Mwanza region enjoys a very good solar regime (average of 5.5 $kWh/m^2/day$). Therefore, introducing individual PV systems would make it possible, in the long term, for some 17% (as per the market survey undertaken by Umeme Jua) of the 295,917 households (2002 figures) and the few community users located far from the grid (see Table 2 below) to have their basic electricity needs met from the locally available solar resource. This will have the effect of eliminating the amount of 47 million litres of kerosene used for this purpose over the 20-year lifetime of the equipment. This will be leading to significant global benefits by reducing greenhouse gas emissions. Thus, it is expected that the introduction of PV systems for the provision of electricity services in Mwanza region will generate a reduction of app 29,000 tonnes of CO_2 over the 20-years.

18. As indicated in para. 2 above, national coverage of electricity is very low (10% of the total population) and 99 % of the rural population living in dispersed communities located away from the grid have no access to electricity services. Many of these rural communities may not be connected to the grid for the next 15-20 years because of the high investment that is required for grid expansion. Thus, removal of the identified barriers to PV-based electricity generation in the Mwanza region will have the net effect of more than a five time reduction of CO_2 when implementation of PV systems for basic electricity needs, based on the lessons learned in the Mwanza region, is completed in the other regions of Tanzania. The estimated national reduction of CO2 taking into the effect of the Mwanza project is almost 119,000 tonnes of CO2 over 20 years.

19. Removal of the identified barriers to PV will also provide the private sector with the necessary confidence to set up new businesses for the sale of PV systems. This will benefit rural consumers in Tanzania in that they will have access to environmentally clean electricity services without the long wait for the arrival of grid-connected electricity. The net result will have a four-fold effect: provide rural consumers with a better quality of life, create opportunities for income-generating activities based on the availability of electricity services, thus assisting in poverty eradication, generate the potential to substantially reduce the rural energy sector carbon emissions and eliminate a safety hazard (kerosene fires) while simultaneously provide better indoor air quality (decrease the number of smoke and soot-related health problems associated with prolonged exposure to kerosene fumes). On this last issue, a 1996 WHO report indicates that indoor air pollution is a leading cause of death and illness in developing countries; in fact, larger than tuberculosis, AIDS or malaria.

20. In addition to bringing about local, national and global benefits, the project is consistent with Tanzania's national development priorities. It will increase the use of renewable energy and decrease both the consumption of kerosene for lighting and that of diesel required to power the additional generating capacity in case of grid extension or captive electricity generation. The Government of Tanzania is currently engaged in a process that will lead to

privatisation of the electricity sector and, hence, the project is in line with the objectives of MEM's development priorities and privatisation programme.

21. The market assessment provides the following picture of the potential PV market and avoided kerosene consumption for lighting and refrigeration in rural Mwanza region:

Table 2: Potential PV Market and Avoided Kerosene Consumption in Rural Mwanza in 2002

Market Segment	Number of Potential PV Users in 20 years	Avoided Kerosene Consumption per User (litres/month)	Total Avoided Kerosene Consumption
Baseline	18,393	8	1.8 mill
Effect of project	61,679	8	5.9 mill

The market assessment further highlights the following two important considerations:

- The consumer market is primarily for individual solar home systems or individual community systems. Except in very few cases, the houses in rural Mwanza region are very dispersed, making it economically and financially not viable to supply them from PV-based mini-grids.
- The introduction of PV to provide electricity services in rural Mwanza region will create opportunities for new or additional income generating activities. Examples of these are the potential to set up solar battery charging businesses (e.g. Nyarugusu mining settlement and Bushishoro village, both in Geita district), to mount PV panels on mobile pushcart-operated "music" shops selling cassette tapes, with the electricity utilised for advertising and testing of tapes, to extend the business hours of neighbourhood shops, etc.

22. The different scenarios in the market surveys estimates that a variety of 10-30% of the rural households in the Mwanza region can afford electricity service from a PV system. Using the base scenario of 17%, this amounts to approximately 50,000 PV systems. And assuming that the affordability rate remains constant at >30 % (the Government hopes that its aggressive poverty eradication policy will likely increase this rate), the total number of PV systems that would be " affordable" would increase with population growth. Thus, there is a huge potential market in the Mwanza region (and in the country as a whole) for properly sized and installed PV systems and the aggressive participation of the private sector is both required and necessary to provide the increasing number of households with basic electricity services.

23. In Mwanza, on the basis of consumers' willingness and capacity to pay, as evidenced in the market study, it can be reasonably expected that the growth in sales from the project will start showing in the second and third year, with an exponential growth up to 50% at the peak. As per this scenario, it is expected that app. 4,600 PV systems would be installed in the Mwanza region during the five-year duration of the project, compared to the baseline estimation of 2,800 systems. The growth effect due to the project is expected to be continued in the first years following the project, and then eventually the market will be saturated and the growth is expected to decrease, and only follow population growth. In addition, the momentum for installing PV systems should pick up in the rest of the country after the 5 years of project implementation in Mwanza, by which time the breadth of coverage would

have expanded to other regions of Tanzania as well, mainly due to the efforts of other partners active in the PV field. On the basis of the market survey, it is foreseen that the bulk of the requirements in the Mwanza region will be for individual solar home systems in the 10 - 50W range. There will also be markets for larger home or community systems as well, but the main bulk of the market is known to be on the smaller systems. 10-30 Wp lighting systems will be of interest to far more household in Tanzania than 50 Wp systems. Making available lanterns (and perhaps smaller systems for powering radios and cassettes) will help to reach the needs of lower income groups. The total cost of the project where an addition of 1600 PV systems for the provision of off-grid electricity services as per the scenario outlined in Para. 24 above and inclusive of the soft costs for the policy/institutional framework, capacity development, etc. are estimated at US $ 2.25 million.

24. UNDP GEF activities will focus on the Mwanza region, mainly from the point of view of having a focused development support, and to establish a pilot for further replication. Mwanza is chosen as its rural population is higher than other regions in Tanzania, and is also a fast growing region. Mwanza as an urban centre is the second largest city in Tanzania. Also Mwanza city can provide most services to the rural areas in the development of the PV market. Mwanza was also chosen on the basis of UNDP's own regional focus and on the potential for developing synergies with other programmes aimed at poverty eradication in that region of the country. The components focusing on awareness, business development and financing will concentrate on Mwanza, but will be carried out in close collaboration with the Sida project, which will have national coverage. Also, the components related to policy and institutional issues as well as the learning and replication will benefit not only the Mwanza region, but also the whole country.

25. The Swedish International Development Co-operation Agency (Sida) has decided to finance market-driven support to enhance the development of the rural PV market in Tanzania. This approach is not directly aiming at poverty reduction, but rather at promoting the use of the PV technology, which by the development of the commercial market for PV application will reduce the cost structure in the business, and in the longer term, improve affordability, thereby encompassing consumer segments having less purchasing power. It is a five-year project with a budget of 27 M SEK (approximately 3.2 mill USD). The emphasis is on supporting the private sector and stimulating demand. The project shall support the implementation of activities within the following broad areas:1). Business development support to existing and potential PV companies, 2) Development of the Solar Network, 3) Policy and Institutional Development, and 4) Stimulation of End-user Market. The project is based on a few principles such as: The market should preferably initiate the activities in order to avoid predefinition of "problem" and "solution" by the project. Project activities should be minimised to supervision and monitoring whereas activities supporting the market should be subcontracted as much as possible to existing organisations and companies. Sida is also supporting the capacity development in the Ministry of Energy and Minerals and the development of the institutional framework, which according to the new energy policy will put in place a RuralEnergy Agency and a Rural Energy Fund. The total support from Sida for these two projects adds up to app 5.5 mill USD. The Sida PV project is incremental and is considered as co-financing to the UNDP/GEF project, as the UNDP/GEF project can not succeed fully without the Sida project. The Sida institutional project is part of the baseline, and is considered as associated financing, but is also key to the sustainability of the UNDP/GEF project.

26. In addition, a local private company, Umeme Jua (Kiswahili for Electricity from the Sun), has been set up in Dar es Salaam to "put in place the main components for an effective commercial market infrastructure for solar home systems in Tanzania". The shareholders of

Umeme Jua are Ameco Environmental Services and Free Energy Europe BV of The Netherlands, and Fredka International and TaTEDO of Tanzania, and the initiative is partly supported by the Dutch embassy. Umeme Jua is investing approximately US$ 630,000 for setting up a dealer network for sales of PV solar home systems in 6 regions, including Arusha, Kilimanjaro and Mwanza. Again, the Umeme Jua initiative is in line, albeit on a smaller scale, with the objectives of the GEF project. In discussions with Umeme Jua, it is understood that while its activities in the Mwanza region will be implemented in parallel, they would be undertaken, as in the case of Sida in close collaboration with the UNDP GEF project.

3. OBJECTIVES, OUTPUTS AND ACTIVITIES

27. The global objective of the proposed project is twofold: i) to reduce Tanzania's energy related CO_2 emission by substituting PV for fossil fuel (kerosene) utilised to provide basic electricity services to rural homes and community users and ii) To improve people's livelihoods by improving their access and affordability of modern energy services. These would be achieved by project activities designed to remove barriers to the wide-scale utilisation of PV for providing electricity services, initially in rural Mwanza region, and nation-wide at a later stage. The project will develop the regulatory, institutional, financial and market instruments necessary to demonstrate the technical, economic, and financial viability of using the private sector to participate in the process of sustainable development in the Mwanza region, through the delivery of basic electricity services from PV to the rural areas. It will also remove the barriers to the wide-scale replication of this modality in other regions of Tanzania, thereby enhancing the dissemination of such a model in the neighbouring SADC countries and elsewhere.

28. The development objective of the project is *to remove barriers with the aim of promoting the utilisation of PV to provide basic electricity services to improve people's livelihoods and reduce the dependency on imported fossil fuel.* The project aims at overcoming the most important/major barriers. Setting up of a commercial dissemination system is important in order to create the demand. The project shall commence by targeting the market segment comprising of higher income earners. The Project's immediate objectives encompass:

- *to refine the policy framework and the institutional arrangements necessary for the widespread adoption of PV's for providing off-grid electricity services*
- *to increase awareness among the general public, especia lly decision makers, consumers, and other end-users on the potential role of PV in meeting the basic energy needs of rural communities located away from the grid.*
- *to strengthen and support the private sector working in the PV sector to provide better quality of service and to develop models for providing PV-based electricity services to the rural areas.*
- *to explore, develop and test viable financing options for disseminating PV systems.*
- *to disseminate experience and lessons learned to promote replication throughout the other regions of the country.*

29. This Project will enable the Mwanza region to benefit from a clean, modern and, at the same time, reliable source of energy for basic electricity services. A secondary objective is to decrease the number of respiratory and eye problems that affect the rural population as a result of prolonged exposure to kerosene smoke and soot. The same 1996 World Health Organisation study referred to in Para. 19 above indicates that indoor air pollution annually

causes some 2 million deaths world-wide and represents 5% of the global burden of disease. The project also aims at supporting the Government's objective of introducing renewable energy technologies based on PV (and other renewables) for electricity generation to supply remote areas, thus reducing the country's reliance on imported fuel.

30. The project consists of the following five components:

- Component 1: Policy support & institutional strengthening.
- Component 2: Awareness raising.
- Component 3: Private sector strengthening.
- Component 4: Financial engineering.
- Component 5: Learning and replication.

The components are related to the barriers identified, in the following manner:

Barrier	**Component**
Limited awareness of, and experience with PV technology and 12 VDC appliances. Energy is a low priority area among users.	Component 2
Inadequate business knowledge and capacity for distribution, aggressive marketing and sales of 12 VCD appliances and PV systems. Limited technical knowledge of proper sizing, installation, operation and maintenance.	Component 3 Component 3
High cost of doing business	Component 3, 4
High cost of solar systems, initial capital investment and operation and maintenance.	Component 1
Low purchasing power of the rural people	Component 2, 3
Lack of established dealer network	Component 3
Lack of solar PV standards and poor /inappropriate installations.	Component 1
Policy implementation	Component 1
Difficult access to finance for suppliers (importers, dealers, etc.)	Component 4
Difficult access to finance for end users	Component 4

The components are interdependent and are all part of transforming the rural PV market in Tanzania, hence all have to be addressed to remove the barriers. The sequencing of the activities planned to be undertaken as follows:

Component	Year 1		Year 2		Year 3		Year 4		Year 5
1: Policy/institutional									
2: Awareness									

3: Private sector										
4: Financing										
5: Disseminate experiences										

Each of the five components is composed of an immediate objective, specific output(s) and a number of activities. By achieving the five immediate objectives, the project will contribute towards the achievement of the global and development objectives.

COMPONENT 1 POLICY SUPPORT & INSTITUTIONAL STRENGTHENING: The immediate objective is *to refine the policy framework and the institutional arrangements necessary for the widespread adoption of PV's for providing off-grid electricity services.* As outlined in "The National Energy Policy" document recently approved by Cabinet, the Government attaches high priority to providing basic energy services to the country's off-grid rural communities. The implementation of the new energy policy will be supported through this project. In particular, this project will help the Government ensure consistency between the adopted policy and other rural energy support activities; examine the role of VAT and import duties on the price of PV components, and establish standards and codes for the assembling, utilisation and financing of PV systems in Tanzania. As Tanzanian prices for PV systems are estimated to be between 20 and 40% higher than the prices of equivalent systems in Kenya. In order to help reduce the price of PV systems in Tanzania, this component will also look at the East African Community or Comesa tax and customs systems, as prices could be readily reduced if systems could be brought into Tanzania from Kenya without being taxed twice.

The estimated cost of this component is US$ 200,000.

The three outputs of this component will be:

Output 1.1: Implementation framework for off-grid PV defined and in place.

Activities:

- To assist the Government in implementing the new National Energy Policy by:
  - Providing to the development of the institutional framework for implementing the Energy Policy, within which PV will have a niche.
  - Assisting the Government in formulating an implementation plan/strategy for off-grid PV systems
- To assist the Government in finalising a Rural Energy Master Plan (supported by AfDB; SIDA; and others) that is consistent with the needs of a nascent PV market.

Output 1.2: Energy pricing policy in Government is adapted to support utilisation of PV systems, to deliver appropriate products at the right price.

Activities:

- To review the recently introduced regulation exempting PV panels from the payment of import duty[1] and examine how other BoS components might also be exempted,

[1] Import duties have been lowered to 10 ,15 and 20% from 40% for all items, import duty on solar modules is zero. Compounded tax/duty on PV systems is < 25% of the total price. This implies that tax/duty is significant but not major cost item.

consistent with international best practice and experience in the East African Community or Comesa tax and customs systems;

- Based on the above review, to formulate proposals for the removing/decrease of tax/duties on all PV system components and initiate discussions with the Ministry of Finance; and
- Study how all energy services are priced, taxed or subsidised in order to ensure consistency between policies to support conventional fuels and those relating to PV systems.

Output 1.3: Standards for PV components and systems defined.

Activities:

- To develop a project set of preliminary standards, codes and minimal warranty procedures that will be promoted throughout the project, based upon international experience (including PV gap);
- To develop a code of practice for technicians to follow to correctly size, install and maintain PV systems; and
- To facilitate the formulation and adoption of national standards for PV components and systems, in joint collaboration with the Tanzania Bureau of Standards and a consortium of participating PV companies.

COMPONENT 2 AWARENESS RAISING: The immediate objective is *to increase awareness among the general public, especially decision makers, consumers, and other end-users on the potential role of PV in meeting the basic energy needs of rural communities located away from the grid.* Knowledge and awareness are important links in the process to successfully introduce PV for off-grid rural electrification. Market growth has been limited by the extremely narrow band of familiarity with PV systems found among the population at large, and the potential market stakeholders in particular in Tanzania.

The budget for this component is estimated at $ 500,000.

Output 2.1: Awareness program for **decision-makers** developed and implemented.

Activity:

- To develop targeted awareness and information packages about PV systems and their potential to offer development benefits (to be implemented in close consultation with the SIDA project);
- To organise field trips for key decision makers (e.g. MPs, key ministry representatives, NGOs, dealers etc.) to witness the demonstration of PV systems in villages, as well as their local deployment and acceptance.
- To organise a study tour for a limited set of key decision makers (MP's, key ministry representatives, NGO's, dealers, etc.) to countries with blossoming PV markets (eg. Kenya, South Africa, Sri Lanka, etc.)

Output 2.2: End user awareness programme formulated and implemented to address the usefulness and availability of 12VDC appliances (such as radios, lamps etc); that PV systems can power 12 VDC appliances; the technical limitations of PV systems; and the inherent worth and value in PV systems and 12 VDC appliances.

Activities:

- To prepare and disseminate information and awareness packages of printed materials to raise awareness of the benefits of PV systems and technology;
- To prepare and disseminate an outreach programme utilising multi-media to raise awareness of the benefits of PV systems;
- To prepare educational material on PV systems to be disseminated through schools in the targeted regions;
- To organise general awareness campaigns (e.g. free PV-powered video shows on market occasions, etc.) including the active involvement and support of local PV dealers.

Output 2.3: Demonstration program implemented to show the functionality and usefulness of a limited number of PV installations in strategically important locations and niches.

Activities:

- To install PV demonstration systems at selected schools, market places and health centres that will serve as an awareness vehicle to sensitise the younger generation and their parents about the value and utility of PV installations. The costs of this activity will be shared between the project, the user and the supplier;
- To identify and make widely available information about a range of PV system packages that service different perceived market needs (in conjunction with 3.2 below); and
- To organised site visits of key decision makers and the press to the pilot demonstration sites.

COMPONENT 3 PRIVATE SECTOR STRENGTHENING: The immediate objective of this component is *to strengthen and support the private sector working in the PV sector to provide better quality of service and to develop models for providing PV-based electricity services to the rural areas*. The studies undertaken as part of the PDF for this project have estimated that the bulk of between 2000 and 3000 PV systems (estimated at up to 40 kWp) presently installed in the Mwanza region have been supplied through the efforts of the private sector, with some grant funding from aid agencies. Despite this early reliance upon grant funding, the bulk of the market for PV's in Tanzania will have to be built around cash sales, with private companies not only engaging in the sales of PV systems, but also assisting in their repair and maintenance. While the theoretical potential exists for the private sector to engage in lease-hire or "ESCO" arrangements, the continued growth of the market will depend upon cash-sales. This component is designed to assist and strengthen the private sector to take advantage of the opportunities in the Tanzanian market, beginning with the Mwanza region.

The budget for this component is estimated at $ 600,000.

Output 3.1: Business Development Services strengthened.

Activities:

- To provide business planning and development services through one-on-one meetings with business to develop business plans, marketing plans, and promotional opportunities, making reference, as appropriate, to the resources and opportunities available for support through other efforts (including the SIDA project);

- To create awareness of PV systems, applications, and product lines (eg., lanterns; systems of < 20 to 50 W; systems over 50 W; larger systems; etc.) among existing businesses (eg., appliance stores, electronics shops, etc.) in the towns and villages of Mwanza Region;
- To support the functioning of the recently established TSEA and other similar organisations to facilitate networking among technicians, dealers and suppliers in order to strengthen opportunities for collaboration, partnering, and co-operation;
- To assist local PV wholesalers and importers to develop stronger linkages with international companies;
- To provide training in potential for local manufacturing and assembly, making available the regional studies, market data that indicate the potential.
- To study and discuss alternative service delivery modes (such as ESCO's, “utility delivery”, "hire purchase" or “fee for service” modes) and the roles of various potential stakeholders in the provision of electricity service;
- To make available, reassess; refine; and update the PV market data for the key product lines in order to support further business development; and
- To carry out training on PV business "best" practice, including service warranties and maintenance contracting.

Outcome 3.2 Technical knowledge of PV strengthened. These activities will be carried out in close collaboration with ongoing training activities (such as TATEDO; VETA; etc.) in order to improve and expand upon their effectiveness, and reach.

Activities:

- To develop a variety of courses (short/long) for various target groups on financing for small-scale renewable energy systems; the correct sizing, installation, and repair and maintenance of PV systems; and other relevant topics tailored to the needs of the following groups:
  - NGOs, micro-finance institutions (MFI's); banking staff, and others ;
  - Technicians and sales people;
  - Engineers; and
  - Vendors.
- To work with VETA and other training institutions to develop an appropriate curriculum for the training of PV technicians, including training in standards, international best practice, and codes of practice/ethics.

COMPONENT 4 FINANCIAL ENGINEERING: The immediate objective of this component *is to explore, develop and test viable financing options for disseminating PV systems.* The lack of financing--either to consumers or vendors--is not considered to be a first order barrier to the incipient growth of the PV market in Tanzania. More important to the growth of the market are the limitations on system quality, public awareness, and business support. As a result, this component is designed to test and evaluate two financing schemes on a limited basis as well as to stimulate and support a small number of innovative "productive use" ventures proposed by the private sector participants in the Mwanza region.

The value of this component is estimated at $600,000.

Output 4.1 The most promising model for consumer finance of PV systems will be identified, piloted, and evaluated. This output will draw heavily upon the experience in Kenya and elsewhere within the region with consumer credit schemes for financing PV systems.

Activities:

- To evaluate the experience of consumer financing for PV systems within the region (and elsewhere in the world, where possible) and to make a recommendation about the most promising system to be piloted in Mwanza region. The options to be evaluated will include micro-financing through banks, credit unions, and micro-finance institutions; salary with-holding to salaried residents of rural areas (such as school teachers, policemen and civil servants); vendor-finance schemes; and other approaches to financing the purchase of PV systems.
- To establish and operate a limited pilot system to test the recommended approach to consumer finance; and
- To evaluate the progress made in the pilot activity in order to evaluate its suitability for promoting further growth of the PV market and its reach into rural areas.

Output 4.2 The most promising model for supplier or supply-chain financing in the PV industry will be identified, piloted, and evaluated. To continue the work initiated under the PDF B to study the various opportunities for sustainable financing PV systems in Tanzania, on both the supply and demand sides.

Activities:

- To build upon the evaluation of financing options available for consumer financing of PV systems undertaken during the PDF to identify the most promising avenues within the region and elsewhere in the world, if possible) and to make a recommendation about the most promising system to be piloted in the PV industry in the Mwanza region. The options to be evaluated will include, but not be limited to, micro-financing, bulk-purchase agreements; conventional banking; manufacturer financing; the use of guarantees and contingent finance; and so forth. One goal will be to see how such financing can be linked to the mainstream financial sector to make it sustainable and replicable over a larger scale;
- Study Financing of supply chain that aims at developing financing mechanisms for potential manufacturers/assemblers
- To establish and operate a limited pilot system to test the recommended approach to supply-chain finance; and
- To evaluate the progress made in the pilot activity in order to evaluate its suitability for promoting further growth of the PV market and its reach into rural areas.

Output 4.3 To provide limited grant financing to a small number of schemes proposed by the private sector to test various productive uses of PV's in rural areas.

Activities:

- To develop, in consultation with all local stakeholders, especially private sector entities, a competition process to select several schemes to demonstration productive use applications of PV systems in Mwanza region. This competition is designed to

bring forth the creativity of the private sector as well as "kick-start"-ing the local industry while maximising leverage of GEF resources;

- To support a small number of the "best" projects judged to most effectively meet the goals of the competition.

COMPONENT 5: LEARNING AND REPLICATION: The immediate objective is *to disseminate experience and lessons learned to promote replication throughout the other regions of the country*. Introduction of PV to provide basic electricity services to rural communities will be made available for similar efforts in the other regions of the country and in other SADC countries. Also the project will work closely with the Sida and Umeme Jua activities, to ensure that lessons learned are exchanged.

The cost of this component to the GEF is estimated at US$ 350,000. The outputs from this component will be:

Output 5.1 Evaluation of Impact of PV on rural livelihoods in early adopting households and communities.

Activities:

- Define methodology targeting households adopting PV systems to evaluate and measure the impact of those systems on livelihoods and standards of living;
- Apply methodology to a limited, but carefully selected sample of households and villages in Mwanza region; and
- Summarise the impacts of PV systems on households based upon project experiences.

Output 5.2: Support provided to learning and replication of the experiences with the use of PV to generate electricity in off-grid rural communities.

Activities:

- Prepare publications on the lessons learned and results of the PV initiative in Mwanza for distribution to other sites in Tanzania;
- Organise site visits to the Mwanza region for other donors/investors and private sector entrepreneurs interested in implementing a similar initiative nationally in other regions or internationally;
- Engage with other projects in the country, region and world to exchange lessons, experiences, and solutions encountered to perceived challenges in the PV field; and
- Present the results achieved in Mwanza region through presentations at national and international seminars/workshops.

The GEF Budget for the entire program is provided in Table 3 below. The detailed incremental cost analysis is provided in Annex A and discussed in Section 6.

Table 3 Project Budget

Component Description	Estimated Budget (US$)
Component 1: Policy Support	200,000
Component 2: Awareness Raising	500,000

Component 3: Private Sector Support	600,000
Component 4: Financial Engineering	600,000
Component 5: Learning and replication	350,000
Total	2,250,000

4. RISKS AND SUSTAINABILITY

31. The project presents several levels of risks. Market-driven projects are always linked with high risks in particular in short and medium term, but should, if properly designed, attain sustainability in the long term perspective.

32. The first level of risks relates to the policy level, the national energy policy is not yet adopted and there is also the absence of a rural electrification master plan for the whole country. TANESCO is undergoing restructuring prior to its privatisation in 2004 and has been unable to focus on the preparation of a rural electrification master plan. Thus, there is the risk that a rural area where PV systems are introduced becomes the target of grid extension within a short period of time. This is mitigated by the fact that, pending the setting up a Rural Energy Agency that will have as one of its very first responsibility the formulation of a national rural electrification master plan, proper care will be exercised to ensure that the selection of the focus areas in the Mwanza region for PV are quite remote and will not be reached by grid extension for the next 15-20 years. The Presidential Parastatal Sector Reform Commission clearly sets the framework for unbundling and privatisation of the electricity sector by 2004 and promoting private capital investment. The Government will set up a Rural Energy Agency that will have responsibility for, among others, rural electrification. One of the very first tasks of the Rural Energy Agency will be to formulate a long-term rural electrification master plan and, in this regard, the support of the African Development Bank has been secured. Thus, there will be clear demarcation of those areas that will not be connected to the grid for the next 15-20 years and these will be the focus for PV. In the interim, the target areas for PV will be carefully chosen to be away from potential grid extension. And in any case, the Government's priority for grid extension over the next few years is to cover the 14 district headquarters that are not yet electrified.

33. The second level of risk deals with import duties and value added taxes on PV system components. This is mitigated by the fact that Government made a step in the right direction on 1 July 2001 by removing import duty on PV panels. The second risk is associated with import duty and value added tax (VAT) on PV system components. Until 30 June 2001, an import duty of 20 to 30% was imposed on PV system components (panel, battery control unit, battery and lights), the rate varying from component to component. In addition, a 20% VAT is imposed on all solar items. Thus, these taxes increased the cost of a complete system by over 40%. However, as of 1 July 2001, PV panels are exempted from import duty, but the 20% VAT is maintained. Both import duty and VAT, albeit at a reduced 10 to 20% level, are still imposed on all other PV system components. This risk is considered small to moderate. The project has been developed in close consultation with various key Government Ministries and is supported at the highest political level. Laws are in place to facilitate private sector participation in the provision of public services, including electricity services. In addition, the Government has adopted a policy to reduce fossil fuel dependency for electricity generation and use renewable energy as a substitute, where feasible. Therefore, this issue will be closely followed during project finalisation and implementation, with a view to having PV systems sold in the local market free of all import duties and taxes.

34. The third level of risk resides with the possibility that consumers will not approach the lending institution for loans to purchase PV systems. This risk will be minimal as consumers are already approaching PV dealers for loans to purchase systems, but, unfortunately, these dealers do not have sufficient cash flow to sell on credit. The third risk factor is associated with the possibility that consumers will not approach the lending institution(s) for loans to purchase PV systems and it is considered quite small. While the present level of awareness on the services that PV systems can provide to off-grid consumers is not high, rural consumers do every now and then approach the few PV dealers in Dar es Salaam and Mwanza cities for credit sales. Unfortunately, because of poor cash flow, these dealers cannot make credit sales. This risk will be mitigated by the awareness campaign that will be mounted, as part of activities under the project, to explain the potential services that PV can provide to off-grid rural consumers. The awareness campaign will also provide consumers with information that they can have access to loans for that purpose from lending institution(s). In addition, the PV dealers themselves will direct potential consumers in need of loans for the purchase of systems to the appropriate lending institution(s).

35. The fourth level of risk deals with the replication of the Mwanza region experience to other regions of Tanzania, aimed at supplying PV-based electricity to rural consumers. The project cycle for the Mwanza region will provide "lessons learned" that will largely contribute towards mitigating this level of risk.

36. The last risk factor identified is related to the replication of the Mwanza region experience in other regions of Tanzania. This risk is also considered quite small. After the successful demonstration of the private sector driven delivery modality for the provision of basic electricity services to rural communities in the Mwanza region, it is expected that the private sector in the other regions will find the modality interesting and worth replicating. Already, there is private sector interest (e.g. Umeme Jua Ltd.) to initiate activities in regions like Arusha and Kilimanjaro to create a network of PV dealers, sales agents and technicians and on the part of Sida Sweden to make loan funds available in several regions, including Mwanza, through the banking sector. Hence, a positive experience in the Mwanza region will go a long way towards generating private sector confidence to invest in the PV market.

5. STAKEHOLDER PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS

37. The development of the PDF-B project brief has been undertaken in a participatory way, consulting the major stakeholders throughout the process. A wide range of groups and organisations are stakeholders in this process, from the supply chain - the end users, dealers, importers and international suppliers. Then various Government institutions are involved in their capacity as policy makers and setting up an enabling environment for PV growth. Also NGOs, consultants and training institutions have a stake in the sector, as well as development partners supporting MEM's activities with related projects in Tanzania and related projects in the region.

38. Three stakeholder workshops were held in Dar es Salaam and in Mwanza City in September 2001 and Morogoro, December 2001. Additional meetings with key partners have been undertaken one-on-one. The discussions with stakeholders brought out the following important considerations: there is huge potential for PV in rural Mwanza region (and Tanzania) to provide off-grid consumers with basic electricity services. The local population are supportive of activities that can accelerate their access to these services in order to enable them to enjoy a better quality of life. They recognise the fact that privatisation of the

electricity sector may increase their wait for grid electricity and see PV as a really viable alternative. They also fully understand the Government's plans to privatise the services sector. Hence, they are willing to work with the private sector and lending institution(s) to make this happen.

39. Potential consumers and end users of PV products were consulted as part of the Market Study in Mwanza region /REF XX/ in 2000 - 2001. Also community members were part of the workshops organised in the region in September 2001. I addition, there has been close consultations with the RAS/RDD Office in Mwanza Responsible for regional administration, development and planning issues and districts representatives. The relevant Government institutions in Tanzania dealing with energy and climate change issues and with international collaboration were consulted during the implementation of the PDF B, and support the follow-up project brief. The main Government partner is the Ministry of Energy and Minerals (MEM) . They are responsible for policy formulation and defining strategic objectives in the Energy (and Minerals) Sector. MEM's Renewable Energy Section (RES) is in charge of the national renewable energy (and energy efficiency) programmes and projects, and the assistant commissioner for Renewable Energy is the main contact point for the project.

40. Additional government institutions who have a role are The Vice Presidents Office, the National Focal Point for GEF matters and main authority for environmental policy, strategy, regulations, inspection, management and education. Then the Ministry of Finance - Responsible for overseeing and coordinating financial matters at national and international levels have a role. The most key NGOs and network organisations in PV in Tanzania are the Tanzania Solar Energy Association (TASEA) – An association of practitioners active in the promotion and utilisation of solar energy technologies. TaTEDO and Fredka are key NGOs in renewable energies, delivering training ,consultancies and awareness. For training the Vocational Education and Training Authority (VETA) is a key institution, responsible for vocational/technical training of craftsmen, technicians, etc. at the post-primary/mid-secondary school level.

41. Financing institutions of relevance to PV is a number of Banks/Micro-Finance Institutions , as they are potential providers of loans to the rural sector (e.g. CRDB and NMB). Then the representatives of the Private Sector have a key role in the implementation of the programme, as they will be involved throughout the market chain, in the manufacturing, importing, wholesale, dealers, sale and after-sales service of PV systems. Other relevant stakeholders are the Tanzania Bureau of Standards (TBS) – Responsible for formulating standards for goods and services in the country will have a role in the formulation of standards. Then the Tanzania Electric Supply Company Ltd. (TANESCO) – National Electricity Utility owns, operates and maintains the electrical system. It is a government-owned company that is in the process of being restructured prior to privatisation.

Implementation arrangements

42. The programme will be executed by the Government, under the UNDP National Executed (NEX) modality. Experience has shown that NEX provides the best opportunity for project support to conform Government Priorities and ensure national ownership. The Renewable Energy Division, Ministry of Energy and Minerals will serve as overall Executing Agency for this PSD, and has the responsibility for providing oversight and co-ordination of the Programme Support Document (PSD). For operational purposes the Assistant Commissioner for Renewable Energy will be the executing counterpart.

43. For the implementation of the programme, an independent Project Management Unit (PMU) will be set up. The PMU will be consisting of an international Project Manager, a

national Programme Officer, a Project Assistant and a Project Driver. The Project Management Unit will be based in Mwanza. The Project Manager will be responsible for day-to day operations and co-ordination, contact with the main stakeholders and will act as liaison/facilitator among the various local stakeholders and donors/investors. The Project Manager shall also have the overall responsibility for procuring project implementers through sub contracts. This task comprises the formulation of Terms of Reference for the required services, preparation of complete tender documents including contract conditions, preparation of short lists, advertising and issuance of tender documents to prospective bidders, tender evaluation and contract negotiations. MEM shall be the contracting partner. Government rules and regulations for procurement shall apply. MEM shall approve all tender documents and tender evaluations before contracts are signed. UNDP can assist the Government in some of these services, such as identifying consultants, developing ToR etc. If UNDP's assistance is requested for procurement, UNDP procedures shall apply. The PMU will develop an overall annual workplan indicating the activities that will be supported by UNDP/GEF through the programme. This should be co-ordinated with the workplan prepared for the Sida supported programme. The PMU will also prepare quarterly reports and budget requests against the annual workplan to submit to UNDP for advancement of funds.

44. Two MEM staff will be the main liaison officers from the ministries side, and each of them will allocate approximately 25% of their time of follow up the project, do regular monitoring and evaluation during implementation. The same officers will also be co-ordinating the Sida project and other projects in renewable energy. To ensure continuity beyond the project life, it is foreseen that these positions will be transferred to the new Rural Energy Agency when REA is in place. The Agency, which is likely to be funded from fossil fuel taxes and surcharges on electricity consumption, would be the most appropriate institutional home for continuing the task of PV market stimulation.

45. In addition, a Project Steering Committee, consisting of representatives of the Office of the Vice President (Department of Environment), Ministry of Finance, RAS/RDD Office in Mwanza, TASEA, Sida and UNDP, chaired by MEM, will provide overall guidance to project execution. The Steering Committees should be a joint steering committee for both the UNDP/GEF project and the Sida project to ensure co-ordination. Other donors active in the renewable energy sector and private sector representatives may be invited to participate in the meetings of the Steering Committee on an ad-hoc basis.

46. The private sector will have a key role in the implementation of this project, and are seen as the 'driver' of the project. In components 2, 3, 4 and 5, the private sector has a key role to play. To ensure active participation from the private sector, the project will issue shorter consultancies to employ existing private sector participants to carry out awareness training, demonstration projects, work on financing packages etc. Based in Mwanza region, the Project Management Unit will maintain very close contact with the business community, and seek to set up a network of importers and assemblers, vendors, dealers, agents and technicians, as well as participants from financing institutions and potential consumer from communities. The PMU will organise regular meetings with the network to secure their concurrence and support to the activities proposed for implementation.

47. Public participation is vital in the whole process of providing electricity services to remote rural areas. It is important that the Mwanza region residents as well as the whole of Tanzania be briefed on the complete modality of working with the private sector and lending institution(s) and their support secured. Based in Mwanza region, the Project Manager will maintain very close contact with the rural consumers in the local communities. The Project Manager will organise regular meetings with the local inhabitants to secure their concurrence

and support to the activities proposed for implementation and to explain to them the benefits that they would derive from such activities.

48. The Sida-PV project is part of the increment and the GEF project cannot succeed without the Sida project. Both have been designed as complementary efforts and are seen by the government, Sida and UNDP/GEF as one initiative with the same objective and similar approach, but with distinct geographical focus. A high degree of coordination is envisaged (for example through the joint steering committee). Key components (awareness and private sector) of the GEF project are mirrored in the Sida project. GEF will focus on the Mwanza region and Sida will cover the rest of the country. Example of coordination are: Awareness and outreach material and activities will be developed jointly with the Sida project to send a coherent message across the country and to reduce costs (for design and production of posters, radio messages and the like). Also for the private sector component GEF and Sida will develop a programme to strengthen PV dealers and other companies in the supply chain. Those companies who operate mainly in Mwanza will benefit from the GEF project, those who operate elsewhere from the Sida project. Capacity building courses (for example in accounting, bookkeeping, marketing etc) will be developed jointly between the GEF and the Sida project.

6. INCREMENTAL COSTS AND PROJECT FINANCING

49. This project is designed to remove barriers to the introduction of PV systems to meet the basic energy needs of rural communities in the Mwanza region. It will adopt a market transformation approach to the PV market in Mwanza, and is consistent with the terms of GEF Operational Program 6. To the extent that it helps stimulate greater sales of PV's to households and institutions, it will also help reduce both the incidence of respiratory and eye problems attributable to kerosene soot and the risk of hut fires. The proposed project activities would not take place in the absence of UNDP and GEF support, making the project activities largely incremental.

50. A detailed assessment of incremental costs is presented in Annex A. According to market survey information obtained during the PDF B, upper and middle income households use between 8 and 12 litres of kerosene per month, costing $4 and $6. Battery expenses may run to an additional $2 to $4 per month, raising the monthly expenditure on lighting to between $6 and $10 monthly. Because the costs of a small PV system are still relatively high in Tanzania ($200-300 for a small, 14Wp system), there are likely to be incremental costs associated with the purchase of PV systems. However, the market surveys how that the market for PV system may be 17% of the rural, unelectrified households in Mwanza (nearly 50,000 households, depending upon the assumptions used). The purchase and use of a PV system in rural Tanzania may be considered to be an attractive investment for the upper and many of the middle income rural households. However, at the moment, much of the pent-up demand for modern lighting and electricity in rural Mwanza is not being met due to the undeveloped or immature state of the PV market. The purpose of this project is to stimulate the growth of the PV market in Tanzania, especially the Mwanza area, so that costs will reduce as the numbers of installed systems increases, thereby leading to a greater satisfaction of this pent-up demand. However, no incremental cost subsidy per system or per Wp is being requested in this project.

51. According to information obtained during the PDF stage of the project, the PV dealers in Mwanza are currently selling approximately 500 PV systems annually, most of which are smaller systems of less than 20 Wp (typically 14Wp systems using amorphous cells). At present, there are estimated to be 2000 systems of all types in place in Mwanza. (Many of these are donor or mission-funded.) These numbers would put the capacity of PV installed in

Mwanza each year at less than 10 kWp for a total of about 40kWp. Although no historical data exist, it might be safe to assume that the number of PV sales in Mwanza is increasing yearly by as much as 6% (3% attributable to population growth and the rest to economic growth). These assumptions have been used to estimate the baseline growth in the number of PV systems.

52. Through the proposed activities, the project seeks to transform the market for PV's in Mwanza, thereby increasing the number of systems sold by as much as 50% per year in the peak years of the project. This would mean that within five years of project implementation, the PV market in Mwanza would be expected to be selling over 1500 systems per year or approximately 20kWp per year. There will also be expected to be more large systems (>50Wp) sold and in-use as well as more lanterns sold and in-use.

53. Because this project is not requesting a subsidy per W of PV installed, the incremental costs associated with this project are considered to be the costs of the activities designed to remove the primary barriers to PV electrification and stimulate the PV market in the Mwanza region. It will focus primarily on stimulating cash sales, experimenting various credit mechanisms which might be used in future projects to expand the market further.

54. Over twenty years, the expected growth in PV deployment in Mwanza region attributable to the project is expected to reduce kerosene consumption by 47 m litres (47,000 m3), equivalent to approximately 28,000 tonnes of CO2. To the extent that the success of the Mwanza region project can be replicated in the un-electrified areas of other regions of Tanzania, this figure can increase more than five times to a conservative estimate of 119,000 tonnes of CO2.

55. In terms of the electricity service to be provided to rural Mwanza region, consumers will be made aware of the limitations on the electrical loads that PV can supply. Also, in conjunction with the introduction of PV systems, the use of energy-efficient compact fluorescent lamps and other DC appliances (eg., low-wattage radio-cassette recorders/TV sets, etc.) will be promoted and consumers will be trained in the appropriate use of electricity. In addition, all batteries used for energy storage will be recycled.

Table 4: Overall Financing--- US 7,304 mill

Project Activity/ Component	GEF	Others	Total
Policy	200,000	427,877	627,877
Awareness	500,000	840,830	1,340,830
Private Sector	600,000	2,685,363	3,285,363
Financing	600,000	780,000	1,380,000
Learning and Replication	350,000	-	350,000
Contingency/PDF-B	320,000		320,000
Total	**2,570,000**	**4,734,071**	7,304,071

7. MONITORING, EVALUATION AND DISSEMINATION

Monitoring

56. The project will be monitored and evaluated according to standard UNDP rules for nationally executed projects. For each of the five components, a monitoring plan will be prepared during project inception. As part project inception, the Logical Framework Matrix will be revised, specifically the detailed indicators will be revisited and adapted, including measures to track the major external project risks. These indicators will draw upon all sources of information, including those of other donors active in the energy field in Tanzania. Appropriate and specific performance benchmarks will be established prior to project implementation to effectively monitor project progress and to make crucial management decisions. An annual reporting cycle will be established for this project that will provide progress reports to be shared by all participants in the project.

57. Following UNDP's change to results based management the country office has developed a new format for work plans. The format emphasises achievements (benchmarks and milestones) as well as cost per output/result. This format will allow for a critical assessment of program performance as it shows, at a glance, what activities are to take place, when, the cost for each activity, the responsible agent for implementation, progress at the end of every quarter, and to facilitate the preparation of the work plans for the subsequent quarters.

58. In addition to normal Government monitoring, UNDP will have the monitoring and reporting obligation for the program. In this connection, additional M&E missions will be undertaken by UNDP when this is judged to be required, as for example when there is a need for an intermediate assessment of progress or impact before a decision is taken as to the continuation of any given activity. This will be done in collaboration with the executing agency as well as with the implementing partners.

Annual reviews

59. Annual review meetings involving key stakeholders will be held to review the status of implementation of the programme and PED's strategic plan. The purpose of the review meetings is to assess the progress made and to take decisions on recommendations to improve

the design and implementation of the programme in order to achieve the expected outputs. The annual review is to be based on the Annual Programme Report.

Evaluation

An evaluation will be carried out toward the end of the programme. A terminal evaluation will assist programme stakeholders to draw lessons learned for use in improving the quality of future development interventions with similar activities. UNDP regulations have no formal requirements of an end-of programme evaluation, so it should be needs based. The evaluation could be done in collaboration with the other development partners to the programme. Such a multi-stakeholder and partner evaluation is new, but could be a useful learning experience for all parties, where 360 degree approach could be taken to evaluate all parties input to the programme.

8. LEGAL CONTEXT

This programme document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of the United Republic of Tanzania and United Nations Development Programme, signed by the parties concerned on 30 May 1978.

The host country-executing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the Government co-operating agency described in that Agreement. As support to the executing agency, the UNDP country office will provide support services for some of the activities of the project as identified and agreed upon by all parties, especially in the following areas:

a) Identification and recruitment of the recruited personnel/experts to undertake specific activities under the project;

b) Identification and facilitation of training services

c) Procurement of goods and services

The country Office will charge 5% of the total project budget for the provision of all the identified and agreed upon services

The following types of revisions may be made to this Programme Document with the signature of UNDP Resident Representative only, provided he/she is assured that the other signatories of the programme document have no objection to the proposed changes:

a) Revisions in, or in addition to, any of the annexes of the programme document

b) Revision which do not involve significant changes in the immediate outcomes, outputs or activities of the programme, but are caused by the re-arrangement of inputs already agreed upon or by cost increases due to inflation; and

c) Mandatory annual revisions, which re-phase the delivery of agreed programme inputs, or reflect increased expenditure or other costs due to inflation or take into account agency expenditure flexibility.

9. ANNEXES

Annex A - Incremental Costs (See separate file 1)

Annex B - Project Planning Matrix (See separate file 1)

Annex C - STAP Review (See separate file 1)

Annex C1 - Response to STAP Review (See separate file 1)

Annex D - Endorsement Letter (See separate file 2)

Annex E - Cofinancing Letter (See separate file 2)

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December 3, 2007

The Honorable Barbara Boxer
Chairman
Environment and Public Works Committee
United States Senate
Washington, DC 20510

Dear Senator Boxer:

As you and your colleagues on the Senate Environment and Public Works Committee prepare to consider the Lieberman/Warner Climate Security Act of 2007, we welcome these efforts to raise the issue of global climate change to a new level of urgency. Your deliberations are crucial and will inevitably shape the future of U.S. leadership. We offer our prayers for this challenging yet critical undertaking.

Major faith groups across a broad denominational and ideological spectrum have reached a religious and moral consensus on the need for effective action to curb global climate change. As we consider the moral and human dimensions of global climate change, we rely on Scripture, which states that we are to care especially for the most vulnerable among us. We have reached the deep conviction that any legislation passed by Congress must work to protect those who contribute the least to climate change from suffering the worst of its consequences.

We strongly urge you to adopt policies aimed at addressing global climate change that have as an essential element effectively addressing the needs of people in poverty and vulnerable populations here in the United States and abroad. We urge that the Lieberman/Warner Climate Security Act of 2007 provide effective help to those who live in poverty in our nation so that they will not experience increased energy costs.

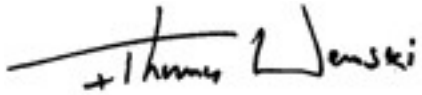
We specifically urge you to support as a priority Sections 4801-4804, which address international security and adaptation. Without sufficient support, many poorer countries will not have the resources to address floods, droughts, disease and the other impacts of climate change. More importantly, the physical, social, economic and political disruptions caused by climate change could lead to great suffering and harm the common good of those societies and the broader global community.

This legislation offers an opportunity for the United States to provide critical leadership for the human family, enabling us to deal with the challenge of global climate change in a timely and equitable way.

A fundamental moral principle for our faith communities is to protect the voiceless and the vulnerable. We believe that this legislation is a significant step toward providing this protection.

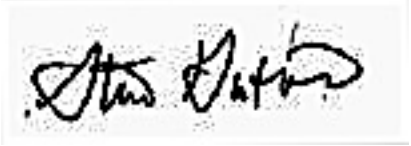
Sincerely,

Reverend Michael Livingston
President, National Council of Churches



Most Reverend Thomas Wenski
Bishop of Orlando
Chairman, International Policy Committee
United States Conference of Catholic Bishops

Reverend Richard Cizik
Vice-President for Governmental Affairs
National Association of Evangelicals



Rabbi Steve Gutow
Executive Director
Jewish Council For Public Affairs/ Coalition on the Environment and Jewish Life (COEJL)

Christine O. Gregoire **Theodore R. Kulongoski** **Arnold Schwarzenegger**

Janet Napolitano **Bill Richardson**

WESTERN REGIONAL CLIMATE ACTION INITIATIVE

WHEREAS, western states are experiencing the effects of a hotter, drier climate, including prolonged droughts, excessive heat waves, reduced snow packs, increased snowmelts, decreased spring runoffs, altered precipitation patterns, more severe forest and rangeland fires, widespread forest diseases, and other serious impacts; and

WHEREAS, scientific consensus has developed that increasing emissions of human-caused greenhouse cases (GHGs), including carbon dioxide, methane and other GHGs, that are released into the atmosphere are affecting the Earth's climate; and

WHEREAS, the Western Governors Association (WGA) has declared that climate change could have severe economic and environmental impacts on the Western States in coming decades; and

WHEREAS, the WGA also has declared that action is needed to reduce GHG emissions and that many of these actions can have significant economic and environmental benefits for the Western States, including increased energy efficiency, increased renewable energy generation, improved air quality, cost savings, job growth, increased state revenues, and reduced water pollution; and

WHEREAS, we support the development of national, regional, tribal, state and local programs to reduce GHG emissions; and

WHEREAS, we support national, regional, tribal, state and local level policies on global climate change that are consistent with efforts to develop cost-effective alternative energy sources and more efficient use of energy; and

WHEREAS, we recognize the need for collaboration among states to develop climate change policies that provide consistent approaches to recognize and give credit for actions to reduce GHG emissions; and

WHEREAS, we have already adopted or committed to adopt clean tailpipe standards for passenger vehicles that will result in major reductions in GHG emissions and other pollutants; and

WHEREAS, we support market-based policies to reduce GHG emissions in the most cost-effective manner; and

WHEREAS, we have set goals to significantly reduce GHG emissions from our respective states; and

WHEREAS, we welcome expanding the partners to this initiative to other states, tribes, Canadian provinces and Mexican states and offer monitoring status to any state, tribe or province interested in observing the initiative;

NOW, THEREFORE, we, the undersigned Governors, jointly establish the Western Regional Climate Action Initiative and agree to collaborate in identifying, evaluating and implementing ways to reduce GHG emissions in our states collectively and to achieve related co-benefits. This collaboration shall include, but is not limited to:

- Setting an overall regional goal, within six months of the effective date of this initiative, to reduce emissions from our states collectively, consistent with state-by-state goals;

- Developing, within eighteen months of the effective date of this agreement, a design for a regional market-based multi-sector mechanism, such as a load-based cap and trade program, to achieve the regional GHG reduction goal; and

- Participating in a multi-state GHG registry to enable tracking, management, and crediting for entities that reduce GHG emissions, consistent with state GHG reporting mechanisms and requirements.

In addition, we commit to continue our independent and collaborative efforts to reduce GHG emissions through:

- Promoting the development and use of clean and renewable energy within the region;

- Increasing the efficiency of energy use within our jurisdictions;

- Advocating regional and national climate policies that reflect the needs and interests of western states, tribes and provinces; and

- Identifying measures in our states, tribes and provinces to adapt to the impacts of climate change.

We will direct our staffs and the appropriate state agencies to meet as soon as is practicable to develop a work plan to move forward with this initiative.

DONE, in five (5) duplicate originals, this 26th day of February, 2007, in Washington, D.C.

_____	_____
Governor Christine O. Gregoire State of Washington	Governor Theodore R. Kulongoski State of Oregon
_____	_____
Governor Janet Napolitano State of Arizona	Governor Bill Richardson State of New Mexico

_____
Governor Arnold Schwarzenegger
State of California

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For Immediate Release
December 19, 2007

Contact: Lina Garcia / Mayors Climate Protection Center
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Statement from The U.S. Conference of Mayors President Trenton Mayor Douglas H. Palmer on President George W. Bush Signing of Energy Bill

Washington, DC – "On behalf of The United States Conference of Mayors, we commend President George W. Bush for signing a new energy bill this year that will help accelerate our climate protection agenda in American cities, which is where so many millions of Americans reside."

"In cities all across the country, mayors have taken local climate action and are ready to partner with the federal government to create green jobs, develop energy efficient and alternative energy supplies, and work with our citizens and businesses to make cities more energy efficient. In particular, this energy bill will form a new partnership with the federal government through the creation of an Energy Efficiency and Conservation Block Grant Program for cities. This new $10 billion block grant commitment has been the Conference's top legislative priority, as set forth earlier this year in the Mayors 10-Point Plan."

"To date, more than 750 mayors nationwide have signed our U.S. Mayors Climate Protection Agreement committing to reduce carbon emissions by 2012. This energy legislation will allow city leaders to expedite their goals to make their cities more climate friendly."

"As President of The U.S. Conference of Mayors representing the nation's mayors, I also want to thank Congress for championing the block grant initiative on behalf of our local leaders. With this new partnership between cities and the federal government, we will be able to make America healthier and more energy efficient for the sake of our future generations."

###

From: “Chance Glenn” [redacted]
Subject: Make up of the President’s Council of Advisors on Science and Technology
Date: Fri, November 9, 2012 10:39 am
To: pcast@ostp.gov

Hello,

While I am quite thrilled with the concept of this Council, especially in a time where the STEM disciplines are critical to the economic competitiveness of our nation, I have to say that I am dismayed that there is not representation on the council from any member of a Historically Black College and University (HBCU). HBCUs are the leading producers of minority scientists and engineers in the country, at both the undergraduate and graduate levels. Combine this with the changing demographics of the nation, and it leads to the imperative nature of an HBCU voice in this process. Clearly a significant percentage of the one million additional
STEM graduates will come from HBCUs.

As a Dean of College of Engineering, Technology and Physical Sciences on one of the most historic and vibrant HBCU campuses, I would like to offer my time to support this effort. I am aware that the Department of Education recently awarded HBCUs with a grant, however this should not exclude us from the overall decision process.

I look forward to hearing back from you.

Dr. Chance M. Glenn, Sr.
Professor and Dean
College of Engineering, Technology, and Physical Sciences
Alabama A&M University
[redacted]

Dear PCAST

I am writing to you to inquire about follow-up steps to the PCAST/ AMP report that you submitted to the President earlier this year. Specifically, I would be obliged if you can help direct me to any resulting initiatives in place (private, public, or joint) in which manufacturing professionals such as myself can take part in.

The Advanced Manufacturing agenda, understandably, is bold and broad, and I can only speak to the aspects that I am qualified to. One such aspect is item #1, establishing a national advanced manufacturing strategy. My academic research in manufacturing strategy won the 2001 Best Paper of the Year Award in manufacturing management from the Decision Sciences Institute across multiple journals. The work was done at my alma mater, University of Michigan, with added guidance from faculty at Harvard. With a renewed interest in manufacturing in the US, if there is an opportunity to contribute to the development of the appropriate National Advanced Manufacturing Strategy, I would be delighted to assist that effort in any way. This work is vital and exciting.

The other aspect I can meaningfully address is in the very definition of Advanced Manufacturing used by PCAST/ AMP, viz., a family of activities that depend on the use and coordination of information, automation, computation, software, sensing and networking. I am now with a public-private technology start-up developing and testing patent-pending next generation software technology that provides manufacturers with novel system capabilities to use and coordinate information towards competitive advantage. We believe that these system capabilities we enable can differentiate American manufacturers from their competition, and can help SMEs through an NNMI in the future.

The Advanced Manufacturing agenda resonates strongly with me and I believe there must be an avenue to be a meaningful part of the work being done to implement the recommendations of your report.

Best regards,

Ashok Mukherjee, PhD

Co-Founder and CEO
Modria, Inc.
[redacted]

Craig,

We do not know each other, however, I wanted to share information about the National-State Club House Network -- a proposed private-public non-profit I am advocating that the Business Roundtable via Business Associations support what I call the Student STEM Roadmap for Grades 4-12. This proposal directly address the President's request for 1 million additional US STEM graduates -- but from the business community's side vs. college course adjustments.

I realize I am presumptuous in sending this, however, I wanted to make sure someone with a strong system platform be involved. One of the particular challenges is the initial capital funds required up-front. However, the cost-effectiveness of what I am proposing, is a logic solution for sides of industry. I may, however, need help to justify as such to others PCAST members - plus other support measures.

My request is for you to read the attached and then schedule a call. At this point I am garnering key executive feedback and hopefully support. If necessary I can make a trip to review slides. Market/Branding and brevity will need to happen in the next phase.

The National-State Club House Network is a national framework -- 3 standardized Club Calendars -- Science, Technology and Engineering. Effectively 12 months x 3 clubs = 36+ industry sectors - or 27 if we use summer months for innovation projects showcased in September for Competitions in October. In addition, it also proposes funneling multiple STEM education agendas (partners) into one niche called the "Student STEM Roadmap" (Grades 4-12)-- the most cost effective delivery for business corporate foundations and philanthropic to support. In summary a students (family/schools) -- whether rural, suburban or urban -- can have access to STEM Clubs (movies/videos, project and field activities, online advance school classes, mentoring and a trust foundation for scholarships/internships as incentives when necessary for industries.

Having engineered and devised SaaS expense operations many years back -- I found it relevant to solving the US education non-profit challenge. Although more up-front capital expenses I am concerned that the Gates education group focuses too much on key existing education concepts vs. system based cost effective platforms necessary to organize/focus business foundations to bring education results. To be sponsored by business associations - provides students not only education, but STEM activities and professional access.

Furthermore, the need to be national-state (vs. regional required for mentoring) has been worked out not only for market success to support additional STEM success candidates, but also paying vs. non-paying student capacities - thus equalizing US access and yet not over burdening business -- independent of district conditions or upgrade plans. The Club House Network if well supported could be developed in two years and rolled out in all 50 states within 3-5 years. Much faster than DOE roll-outs currently.

The analysis I worked through is relevant to all non-profits -- which I forwarded to the Gates Foundation, as well. In this case beneficial to prioritizing the business investment in education -- and I have provided recommendations parameters and estimated US base cost comparisons - between the Club House Network (a new US STEM Baseline), online advance classes, mentoring (remote and in-person) and Trust Foundation for STEM scholarships/internships. When I lined up the Students access needs to a STEM path and the costs - a number of issues became apparent.

I have recommended the Club House Network have National and State Industry Advisory Boards (the same as the proposed standardized Club Calendar). The President's PCAST could be the National - separate from the Board of Directors. Structure for the National-State Club House Network is critical to delivering the promise and cover annual operating expenses in all 50 states.

Craig I must be clear this is only a proposal -- This has not/is not a formal PCAST presentation. I only just faxed the same letter to John Holdren today.

My request is for all feedback to come back directly to me vs. to others. At this point I am attempting to orchestrate a methodical effort corralling key parties. This translate to please do not copy or distribute without permission.

Thank you all --

Regards,

Ellen Reilly
Proficiency Lab Interchange, Inc.
STEM Club House & Math Lab Interchange Tool Box

[redacted]

National-State Club House Network©
Proficiency Lab Interchange, Inc.
[redacted]
September 20, 2012

Proprietary and Confidential Draft Proposal: For Discussion Purposes Only -- Do Not Copy

Mr. Craig J. Mundie
Chief Research and Strategy
Microsoft, Inc.
[redacted]

Emailed to Assistant: jennyle@microsoft.com (8, 11 or 14-pages)

RE: Proposal for Discussion - How Business Associations can Help to Meet President Obama's 1 Million STEM Graduates via the National-State Club House Network©, a private-public non-profit Proposal

Dear John:

Thank you for your time and consideration. As you know there are four approaches to securing 1 million additional US STEM Graduates.

1. K-12 Education Turnaround Practices Rollout Across all 50 States—i.e., Common Core standards including Science
2. College STEM course revisions, empirical teaching practices and support systems
3. STEM support from the Private Sector --- i.e., Professional Industry Associations – and Corporate Foundations, Philanthropic, State grants support a National non-profit National-State Club House Network© developed within 1-2 years and 50 State rolled in 3-5 years
4. Make US Structural Changes/Adjustments – to reduce US poverty and low-income immobility.

This proposal focuses on the solution for #3. – National Club House Network -- it is a Workforce, STEM career pathways and STEM education

Mission: To raise the New STEM Baseline© and create and make clear the US Student STEM Roadmap©. (Grades 4-12)

Proposal: To not only encourage student participation in STEM disciplines, but also to educate students on STEM applications and requirements prior to college – career choice years (Grades 9 and 10) – through Science, Technology and Engineering in and out-of-school Clubs (industry/career requirement movies, project and field activities) State Competitions, Fairs (activities, internships, summer jobs, etc.) and access to on-line high-school advance classes, mentors, and scholarship/summer internships via a series of partnerships.

Goal: *To Equalize STEM Knowledge – Education, Activities and Access to Professionals*
The most effective, lowest cost means to educate, apply and engage the largest
US Student STEM population – whether Rural, Suburban or Urban

How: Establish a non-profit business services operation with a National/State network infrastructure (and Regional, if mentoring) using a SaaS, Cloud-Based Secure Network – that frames STEM content into standardize Club Calendars (flexible to content changes over time) access by Students, via School authorization, to learn about the Student STEM Roadmap Grades 4-12, independent of district conditions. Ideally, included are the following information and services:

- 3 Club Calendars – Science, Technology, Engineering – movies/video, project activities and field events
- State Competitions and Fairs
- Potentially 10 High School Advance class for any US student and curriculum offerings for schools professionals (before STEM mentoring, also 1/5 –1/8 the cost if, nationally, online)
- Potentially Mentoring/Volunteers – Remote and In-Person College/Vocational Bound; Ask the Expert – Student and STEM Teacher; Club Co-Managers
- Potential Foundation (if the Business Community chooses) grants scholarship/internships, summer jobs as incentives as needed
- Via National infrastructure providing back office processing and operating procedures to keep all state operations lien – i.e., donor management, accounting / purchasing /IT, standardized club calendars, mentor management/training. State operations provide district school/club manager (potentially mentor) relationship management, state event management (competition and fairs) and sourcing sponsorships, foundation, philanthropic and grants.

Imaging for a Moment: *For Example -- By utilizing the standardized STEM Club Calendars©; November might be Aeronautics month and the five professional business associations in the state will put on two-four Friday afternoon events that month (the same month every year) in three to eight locations in each US state for students to attend.*

Students will either watch their club movie/video download and work on their club aeronautics project in school or after-school, update their remote mentor by email or, alternatively, attend the field trip offered that month in three to five locations within the state provided school authorization. At the field trip student will meet industry professionals that may provide internships, summer jobs, scholarships, after college job interviews, etc.

***Attempt to Equalize STEM –Knowledge, Activities & Professional Access**-- This is accomplished by creating the expectation of student "STEM Culture" using informal STEM Clubs and holding a larger majority of STEM engaged students in transition from Elementary through Middle to High-School. Furthermore, to provide a vehicle not only to educate, but also knowledge, application and access to relevant STEM business experts so students can cross-out of schools, neighborhoods and meet like-minded people. And visa versa– necessary for truly engaged communities to dispel misunderstandings.*

Market Potential within Five Years: In any given year there are 31+ million potential STEM students Grades 4-12. The goal is to create a "New US STEM Baseline", as outlined below, developed in 1-2 years and execute a 50-state rollout within 3-5 years to increase the number of US Natural Science & Engineering (NS&E college or technical) Grade 12 college-vocational bound graduates. Assuming Club penetration must exceed 30% or nine (9) million or 250,000 NS&E college graduates. The current STEM career interested population, this agenda requires on-going Business Roundtable, business association, NSF, Department of Education (DOE) and partner commitment and cooperation to a non-profit, private-public partnership national-state operation is required. The Club House Network has the potential assuming cumulative grade-level clubs (in and out-of-school clubs), competitions, fairs and advance classes, mentoring and scholarships/internships (incentives) have the potential to secure 250,000 –

750,000 STEM graduates. Again, results assume Business Roundtable, Business Association, NSF and DOE leadership support. Without leadership support, investment may not be advised.

Business Associations and Parents Share a Mutual Interest to Improve Education Investment Returns

Partnering with schools/students/families to assure student education investment returns is necessary. Pushing more students into college without accurate industry information education can prove to be a mistake, especially when considering college costs and job mismatch conditions within the US. The STEM Club House Network solves that problem. Each of the agendas I have created attempts to share what is common knowledge (and access) within the business community with students and families to date, yet has been limited, generally speaking, to more privileged families.

Today advance tracks, STEM paths and career application, information and professional access is non-existent in many communities or provided too late to participate. So if business is serious about securing an untapped labor market then the enclosed proposal allows them (not educators or government) to do their part in a focused, resource technology platform effort to facilitate meeting the 1 million additional STEM graduates.

Furthermore, I believe it is important that students and families understand, through information sharing, how academics translates to application and innovation (by doing projects and seeing applications) and translate this information to the extensive range of career choices possible prior to Grade 10. Furthermore, students/families should make informed investment decisions regarding post-secondary education. Uniquely today, it is plausible with focused resources, technology, commitment and cooperation. The National-State STEM Club House solves these objectives and focuses investment for STEM graduate results.

National Club House Network Capital Requirements: See Exhibit B and Slides #25, 28, 29.

Structure Critical to Investment Returns: Please understand that a meeting is necessary for me to assess mutual understandings, needed flexibility to adjust the plans, requirements for success made clear and commitments affirmed. I am clear that, alone, I am unable to deliver this agenda. In fact I would argue, as I have done within the market analysis, that it is not a good investment for the business community if initiatives are done separately. However, jointly with the right structure a non-profit Club House framework (flexible to content changes over time), National-State Network delivery Business Roundtable, Business Associations/AAAS, DOE and PCAST and many partners will be effective. The National Club House will have not only a board of directors, but also an Industry Board of Advisors (PCAST) and State Industry Board of Advisors – critical to assure annual funds and sponsors in each state to execute what should go into this funnel. The Club House Network, however, reduces the delivery expense and keeps the customer focus to make a strong college/vocational- ready STEM results, credible to execute. The business/execution plans articulate and cost justify structure according to breakeven efforts while also trying to accommodate the paid vs. non-paying students conditions that make a US-based offering an extremely costly challenge. See the Club House Network slide presentation.

Recommend Scheduled Meeting: John it would be helpful if we could meet to discuss current Workforce/Education plans since this is my vision. A lot of corporate funds are expended annually. A focused approach, partnering through business associations, could prove better results that indirectly benefit many industry sectors sharing the overhead expenses of the non-profit National Club House Network. May I suggest a meeting at your office so you can better understand how we will position efforts so although supported by business associations it is great for students/families to assure education investment return.

Please understand, I have an urgency related to NSF's annual submission—early December – with a potential goal of 1-3 Club Calendars delivered 1-2 years from now. However, Business Roundtable support is necessary. Also know I have am forwarding to other CEOs and foundations.

Next Steps:

To avoid complications and to move fast (due to economic conditions), extensive execution plans have been devised, however, initial staff efforts are now necessary, partner buy-in must be confirmed through meetings, letters of endorsement/intent, financial and other support commitments in writing and action benchmarked for results. All are necessary, for NSF and other philanthropic support of this magnitude (needed by early December 2012).

1. ***Business Leadership Support*** – Secure Letters of Endorsement from National Business Roundtable and work with me, as necessary, to establish key partners and committees and commitments , OTC/AAAS (or other to standardize Club Calendar©), media corporation, non-profit mentoring system, hosting partner, technical build partners and asset management firm (assuming trust foundation for scholarships/interns). It is important that leadership support be sustained on an on-going basis to hurdle barriers, reduce rollout time and invest with purpose, effectively. I strongly recommend not only the initial meeting, but also periodic meetings to keep the focus over the next two years and assure shared mutual goals, understandings and challenges. Funds, however, are necessary to launch.

2. ***National State Club House Network Pre Launch Activities Funds $300,000--$500,000, are necessary*** to complete leadership partner buy-in/commitments (travel), marketing/branding, text marketing packages, website, evaluation plan, donor marketing/legal and establish annual philanthropic annual grant request submittals (including NSF by early December 2012) necessary to execute. Please note $500,000, is necessary if we want to create Sample Academic-Industry-Career education movies/videos and project and field activity for the Engineering (vs. Science and Technology) Club Calendar, which I assume is the first of the 3-Club Calendars to produce. Note: Marketing Materials including the "business-case" are necessary, current materials are business execution plans, and lack brevity or branding. See the larger capital plan and fund sourcing considerations – slide #29.

   Business Model: to be discussed in meeting

3. ***Establish the National CEO Industry Advisor Board*** **and Committees** – The goal is for students to access 9-12 industry projects each year and compete within one 36 STEM industry segments from the Club Calendar. The National Club House Advisory Industry board might become the US President's board – that will then help establish State Industry Advisory Board (3 clubs x 9 -12 months=27-36) and recruit each industry's lead and sub-business associations $200,000 per calendar month, assumes 5-8 associations per calendar month $20-50,000 each annually. The debate is should the Club House also charge $50,000--$100,000 to create initial movie/project activities, created for three Grade tiers (Grades 4-6, Grades 7-9 and Advance Grades 10-12). The goal is to keep advisory boards business-based and separately, set up an Education Review Committee for content and of course evaluation/survey efforts. The benefit is that students self-identify by club and potentially industry.

   For industry to spend $200,000 per year to educate the widest US student audience is a good investment when compared to association efforts not in the Club House network, never mind easier to sustain and show greater results on a consistent basis.

4. ***Identify an Individual to Manage On-Line Advance Class Initiative***– Another expert, is necessary, to on-line advance class effort, however, I would like us to cooperate together. I know the problem with professorial college-based courses, never mind on-line courses, is that they are not necessarily empirically tested and potentially not effective at broadening student STEM course capacity to include more female, minority and low-income populations. Although there are many choices it is important to make a decision (hopefully content system flexible) for national on-line high-school courses –preferably college –bound, accredited and transferable courses as soon as possible. The use of consistent homework/problem, study hall systems and access are the critical factors, not the actual teaching content and training which should change over time. I am sure we can be helpful.

   The STEM Club House Network is the framework for the Student STEM Roadmap (including on-line advance classes) partnering with schools/teachers and families to easily find. However, note course development costs are not included in this proposal, and would be additional. Reselling, through the Club House, however, is advisable.

Ellen Reilly's Personal Interest to Improve Education: Please see my biography attached. As an individual Business person that while time off for elder family issues, following 911, I engaged heavily in K-12 urban education, creating solutions on top of education turnaround agendas. Although I must pursue a recently developed for-profit agenda (due to recent time off and retirement concerns), I am proposing (assuming support) that I launch this agenda and over the next year (as club technology development occurs) replace myself with potential industry-retired C-Level Corporate executive. Being my vision I will participate as Chairman of the board of directors (unless it makes sense otherwise), simultaneous to my for-profit efforts. My expectation is as an effective contributor I can continue my long-term passion and strategic economic understanding of education, business and growth –equalizing education and access through shared information and engagement. Or as the President Obama says "Engagement to Innovate".

After contenting approximately 300+ education-related parties nationally in the 2004-2008, I decided that the Business Roundtable (Massachusetts and National) through other C-Level executives regarding the Business Roundtable, NSF, DOE (federal and state) and Massachusetts Governor's office, etc. needed to understand the logistic challenges within the industry. At that time I also knew that a national non-profit would need to evolve as a framework for content distribution to reach students/schools that is or is not DOE authorized curriculum. I recommended changes to broaden NSF's mandate and to switch research to STEM, work on STEM branding with the public, create the state STEM advisory council (although I suggested business executives) lead with regards to education non-profit business services and facilitate in the leadership efforts, utilizing professional business associations and to shift who listens to education initiatives because they do not have technology or business backgrounds to recognize scale opportunities – thus unnecessary NSF and foundation grants.

Of course, however, both improvements and misinterpretations have occurred. I realized my involvement is necessary to assure launch focus, execution steps already in process, albeit work completed can be incorporated.

The National-State Club House Network with 3 Club Calendars (4 and 5 if Social Sciences and the Arts are added), 10 high school advance classes, mentoring and foundation for scholarships/summer jobs is what the US needs, what business can do to help student STEM engagement, what government needs business to do, what families want and what technology can deliver.

Having delayed plans, I updated business plans, partners and prepared the execution plans to launch, as early as tomorrow:

Efforts Completed to Date:

- Strategy, Positioning and Business/Execution Plan (50+pages)—Positioning to Shift w/Branding
- Slide Presentation (40 slides)
- 5-Year National and State Financial Expense Projections
- Market/Revenue Penetration Assumptions – including necessary ratios for paying vs. non-paying students with regard to students project activity kits (and potentially mentoring).
- Financial Sourcing Plans – See slide #29, preliminary submittal to NSF with a request to meet in Washington, DC.
- Initiating Discussions with all Partners and potential sources of cash --- AAAS – potential partner for Business Association access, potential funding partners, tech platform and service partners
- Job Descriptions – and team candidates
- Partner/Committee Responsibilities (in process) – including board, Industry Advisor committees, forming state roll-out plans and responsibilities; ready to launch ASAP.
- In process of scheduling meetings with four-five City/States
- Risks –Not working with Ellen Reilly. Alternatively, a national effort is established and the organization is not supported effectively to hurdle barriers, resolve difference of opinions with compromise or open the doors, so efforts do not take another five (5) more to execute what could be deployed in 1-2 years and rolled out to all 50-states, following. See other risk listed (slide #38).

Please contact me day or night, weekends or weekdays, as needed. My contact information:

Ellen Reilly [redacted]
Tel: [redacted]

The following exhibits have been included in this 6-page proposal – *to be presented at the meeting*

Exhibit A – National-State Club House Network Slides (40-slides)
Exhibit B -- Highlights and Key Issues National-State Club House Network Proposal (4-pages)
Exhibit C – Ellen Reilly M. Biography (1-page)

Thank you for your time and consideration. I will contact you in the next month to schedule a meeting. If in the same state I recommend a joint meeting to minimize time conflicts.

Sincerely,

Ellen M. Reilly

Exhibit B-- Highlights and Key Issues -- National-State Club House Network Proposal (4-pages):

Please understand these pages describe more specifically the business association benefits that justify the investment and ongoing operating investment support, not necessarily for schools, educators or students/families. See slide #20 for Club House Network benefits.

Mutual Interests Aligned Assuring Student Education Investment Returns

- *Standardized Club Calendar* – Keeps the US Focus and Application Direct, Literal and Repetitive: For a student to
    - watch academic applied industry-career option movies and university career videos,
    - conduct project activity applications,
    - visit business sponsored field activities/meet industry professionals and
    - dialogue with club members, others students within your community or remote mentor reinforces knowledge and network.

  Students can change from one club to another in consecutive years, ultimately rotating through all three STEM Clubs 2x prior to Grade 10 career choice year.

- *Create a STEM Culture, to demonstrate priority:* Similar to the whole school Read a Book – Clubs are Grades 4-12, thus as 4th grader you can talk with an 8th grader, father/mother or a local business owner about STEM.

- *Expand Industry Exposure 30x Greater than that Provided Today:* Instead of one school club each Schools can have 3 clubs and students access monthly industry activities and choose a summer innovation (individual or club based) projects for the fall STEM Competition (submit in September, State completion October); that is 3 clubs x 9 or 12 months = 27 or 36 industry competitions for each state. This is versus the one robotics club which many girls opt out.

- *Minimum goal for all Students to access the "New US STEM Baseline":* The STEM Club House Network – academic-industry/education requirement movie, project and field activities, state completion and fairs (internships/fairs) – are for Grades 4-12; rural, suburban and urban. The Club House Network is not only for Grades 4-5 in-school clubs, but also school-sponsored clubs after school for middle and high school – which After-Schools can participate, according to Grade level. Alternatively, libraries could offer Clubs.

- *"Educate to Innovate" per President Obama:* Through the summer innovation project students, as individuals or as a team through their Club, build a science summer project to showcase/submit at their school in September for State Competition in October. Clubs are fun, social, require leadership through officer roles and self-sustaining practices – Club fund raising practices within communities.

Increase and Broaden US STEM Capacity

- *The Club House must access Elementary Schools if they are to equalize STEM access in low-income, minority and rural based school areas*: Students and families must be informed (early) of the Student STEM Roadmap (advance tracks and participate in STEM). Waiting until High School is just too late. Furthermore, Advance Tracks are not clearly communicated and must be done so in Elementary School in K1 to families in urban centers. Advance Tracks are segmented in Grade 3 testing. Furthermore, by having Clubs in Elementary School we are not only creating the "STEM Culture expectation when students "like math, but love science", but also showing them the path through informal STEM, but also potentially through parent texts giving the math language necessary for proficiency whether bilingual or special needs and reminding them of daily/library reading.

- *Recommend Minor Student Annual Dues $20 to Assure Ratio of Paying vs. Non-Paying Project Activity Kits:* the Project Activities costs are the reason students do not do STEM projects. The Club House makes this easy, however, the cost of project activities for non-paying student populations can be covered by dues from paying students – assuming a ratio of 5:1. This assumes $100 per student for project activity and $20 per student for dues. This strategy equalizes

and assures efforts are maintained in downturns. Project activity costs are potentially 84% of the funds moving through the Network approaching $900 million per year assuming 30% student participation.

Note: The same strategy can apply to mentoring. However, a consolidated national operation is necessary to make this work – breakeven limit infrastructure options. Furthermore, within the Clubs we are proposing students, like business elect officers, create fund raising events for the next year club activities, thus teaching students leadership and self-sustaining, social efforts and community engagement.

- *Expand STEM Graduate Capacity* – The Club House is valuable as the US focuses on rural, suburban and urban, the untapped STEM labor, primarily female, minority and low-income. The Club House Network can become the highest quality, most effective, fastest roll-out operation and lowest cost STEM system.

- *Parent/Guardian Registration:* – The Club House has the ability to also inform families as well, by allowing view only access to the State Club Calendar –thus benefits to the whole family. Also have the ability to inform parent/Guardian of Advance STEM tracks and other reminders – summer reading, math practice, summer activity planning (in March) college tours (websites Grade 7-9) or in-person, career decisions in Grade 10, advance class sign up reminders, early college acceptance schedules, etc.,

- *More Effective Business Investment:* The business community needs to partner/make a deal with DOE to justify this 5-year $538 million investment, x 2 if replicated for state job training centers. Specifically, what is needed is Club Endorsement in-school for Grades 4-5 and out-of-school Grades 6-12 and Advance Classes tracks, requirements, options and benefits. Also that homework is assigned on weekends – and possibly vacations.

- *More Cross-Community –More STEM Engagement:* The benefits to families, students, communities (encouraging fathers and local businesses to engage with students/schools) is what adults can do well and for states focus on business on STEM engagement – by sharing and engaging through industry passion, innovation and expertise. When workforce shortages exist – incentives (scholarships, internships) can be make available through the Student STEM Roadmap.

- *Consolidated National-State Delivery is the Most Cost-Effective Widest US Student Audience – For STEM Engagement (and Statistics):* Effectively consolidating all proposed services through one national and state non-profit interface makes it less costly, higher quality with wider distribution and faster roll-out, (for all non-profits) – i.e., project activities, mentoring and less expensive for foundations to support The standardized Club Calendar© solves this problem and makes student academic to application literal, easier to understand. The framework is flexible to content changing over time – thus a strong long-term investment. Consolidation, also means consolidated statistics and easier to find STEM information.

Structure US Private Non-Profit with Public Partners –"New US STEM Baseline" within Two to Five Years; Alternative to DOE Slower-Paced Trajectory

- *Consolidating the Student STEM Roadmap Is Valuable* -- Consolidating partners through one National-State Club House framework and interface creates the school, student family focus -- a more effective STEM engagement, data statistics (and research) environment than the current ad hoc efforts and needle in the haystack, go-find efforts families must endure. Great internet information without a framework for schools, teachers, students and families must be structured to funnel engagement, secure better national STEM college ready results and justify investment. The Club Calendar system does this. In addition, it allows business to engage more effectively and for State governments to manage the needs of business through business associations partnering with students and providing incentives, as necessary.

- *Consolidated Non-Profit Effort Reduces Delivery Cost Structures for All Partners/Non-Profits:* Five (5) years cumulative expenses, including infrastructure capital, is $538 million or $4 - 5 million per state annually – is surely doable. Assuming all students expense through the Club House it has the potential to approximate $1 billion in annual revenue, if 30%, or 9 million of the 31 million possible Grades 4-12 students, participated in Clubs. NSF, H1B potential and philanthropic funds are able to cover much of the initial capital costs – movies and infrastructure costs. The goal,

if supported as proposed, herein, is through the National-State Club House which could be deployed in 1-2 years and rolled-out nationally over five years, will generate 100,000 to 500,000 additional STEM interested college-ready Grade 12 graduates.

- The "New US Student STEM Baseline" Decision: Club activities and, potentially, Advance Classes sponsored by 10 universities (free or low cost) and scholarships (if we create the trust foundation) create the Student STEM Roadmap. In-person (vs. remote) College Mentoring is valuable, but approximately five times more expensive and a longer lead time to roll-out, requiring more infrastructure (regional operations vs. state to breakeven) due to labor intensive offering. The investment decisions, and trade-offs regarding affordability, for each grade tier should be made to affirm the new minimum Student STEM Roadmap.

- *The "New Student Roadmap" Partners, but Independent of DOE:* As an independent Student STEM Roadmap, students can access STEM whether rural, suburban or urban, independent of district education conditions or family, social, economic or language. One national system can help attempt to manage a self-funding ratio to keep non-paid project activity expenses subsidized. The same consideration could be applied to mentoring. DOE endorsement, particularly in Elementary School is necessary, as well as empirical-based sessions-reviews. Districts could provide funds for student on-line advance classes, when necessary.

- *Advance High School* Classes Necessary before STEM College Mentoring: Effectively the Club House is a partner for the Department of Education (DOE), especially if the Club House also provides access (through content partners) to the 10 High School Advance Classes. Consider each class sponsored by a University (at a low or no cost). Alternatively, with an existing course distributor. That way any US student can be STEM College-Ready anywhere in the US. Duel Advance classes are, generally, an urban, but not consistently a suburban or rural option. Furthermore, STEM mentoring without access to advance high school classes is limited in effectiveness. Surely, not the best option. In business, when you plan for the least cost consistent option and do so well, that often becomes the general trend option in the future.

  Note within the business plan I have prepared a thumbnail assessment of advance placement class cost deliver options and in many conditions a centralized national platform would reduce the teacher requirement variability factors and where dual university class are not an option. A discussion regarding financial analysis, alternatives and priorities should be reviewed and the same consolidated delivery assumptions applied to reduce sales/marketing, school management expense to provide the lowest cost delivery – in a non-profit organization, that keeps the positioning of this operation academically vs. business-based.

- *Existing Investment Efforts – Many can be Incorporated into the Club Calendar Framework/Network – and State National Deliver Benefits:* Many of existing investments in student activities can be incorporated into the STEM Club Calendars with some revisions – benefiting from state and/or national scale. Furthermore, the Club Calendar will be beneficial to the 5 million after-school students and another 15 million additional Elementary school students – as individual at home when school clubs don't exist (assuming paid minor student dues).

Aligned Interests Education Investment -- Future Workforce -- Structure Private Non-Profit with Public Partners

- *To Meet President Obama's 1 Million STEM Graduate Goal –Focus within Business is Necessary:* For corporate to be effective in supporting the President's goal, focusing resources is necessary to assure school/student penetration to assure additional STEM college graduate results. See penetration assumptions in the market analysis and pricing scheme purposes to understand how to secure the untapped STEM markets --low income, minorities, female school and rural locations; the National Club House Network does this.

- Public or Private? Private roll-out in partnership with public is better and faster: Asking business to spend to invest this amount of funds without a commitment is a mistake. The Business Roundtable, NSF and certain philanthropic can work to secure the partners evolved. However, more innovation can evolve if not tied to curriculum. Yet, it is proven that through STEM engagement, better STEM academic engagement and, assuming STEM Classes more proficient and advance students. For science proficiency either writing or extensive activity – including innovation -- is required.

Furthermore, DOE upgrades can take 10-20 years in the United States. The STEM Club House can be developed in 1-2 years and 50-stat rollout completed within three (3) to five (5) years. ***Question: How can we afford not to support this agenda?***

- *Incentives Can Be Place into the Student STEM Roadmap to Reduce Workforce Job Mismatch, as Necessary:* Once established, the National Club House can be the pipeline vehicle for Business Associations to provide incentives –i.e., scholarship, internship funds or project activity kits. For example, to provide Boson Grades 4-12 project activity kits assuming $100 per student and 100% Grade 4 & 5 participation (assuming DOE support for in-school clubs vs. homework club) and out of school clubs- 40% middle school and 30% high school would cost $2 million. The cost reduction in student incidents and potential drop-out rates (for minority males and increased student in-school engagement, potential math and science class results due to a STEM Culture within the city is more family, community engagement showing the results of education, in my mind is well worth the investment. The Student STEM Roadmap, however, must be deployed in Elementary years to assure stronger academic results. The investment, otherwise, may result in minimal impact regarding STEM college-ready results.

- *Easily and Accessible Corporate Menu for US STEM Support -- a Great* Matrix of Choice– The Industry Club Calendars – Science, Technology, Engineering - Competition or Fairs Sponsors, Mentoring options – remote or in-person, city, state, regional US or National (every state) – allows corporations to support their interests tomorrow, easily and with little effort. This means more US corporations than the same 50 and now 100 that now support education can participate. It might be the machine shop manufacturing company, the US post-office, automotive supplier, hospital, etc.

Effectively, the National-State Club House Network enlarges our community and makes it easy for STEM engagement anywhere in the US.

- *Investment Decision Compared to Alternatives Key to Understand Interplay:* The slide presentation compares business/philanthropic investment in all agendas to facilitate a business decision: 3-Clubs Elementary, Middle, High School, On-line Advance Classes, Mentoring and A Trust Foundation and After School. Combined service-National-State service delivery is best.

- Please note the National Club House Network is to be headquartered in New York City.

Exhibit C – Ellen M. Reilly Biography

Ellen M. Reilly

As Head of Rising Moon Global Advisors (in process during 2013), Ellen M. Reilly is responsible for the firm's management and corporate responsibilities in both U.S. and International regions including emerging markets. A highly accomplished strategic and investment advisor with noted expertise in emerging markets. Ms. Reilly has strong operating experience with several founder/leadership roles and broad industry background, including real estate, financial services, information communications technology (ICT), retail, education and pockets of energy. Ms. Reilly utilizes her extensive cross-border network, general management, finance/investment and corporate development skills to identify and manage investment and client opportunities.

As a decisive management leader, Ms. Reilly has held a variety of positions with experience in middle-market buyout/consolidation and venture fund formation, principal investments, operations and advisory. Prior to her current position Ms. Reilly as Head of Maxis Global Advisors was responsible for Maxis Tech Funds portfolio and emerging market advisory services for sovereign, state-owned enterprises and cross-border corporate clients. Maxis Global Advisors increased asset value through restructuring/structuring, business growth strategies and/or securing add-on-acquisitions. Before Maxis Ms. Reilly was CEO and President of Port Remote Services, Inc., a transaction-engineered software-as-service (SaaS) system for existing large enterprise IT operations and the vendor industry. Prior to PortRemote, Ms. Reilly operated a NYC-based financial advisory firm focused on investment, financials and operational objectives, where the firm analyzed and prepared business strategy and positioning, private placement debt and equity packaging, financial analysis for small and middle-market companies in the financial services, real estate, gaming, auto and technology industries. Ms. Reilly's initial 12 years she, on behalf of principal investment and asset management firms, managed, developed and acquired commercial real estate including discounted real estate mortgage and real property portfolio assets of all types – low and high-rise office, retail, hotel, multi-family, industrial, storage, retirement community centers, health care centers, etc.

Operating out of New York City and Boston, Ms. Reilly is a graduate of Purdue University and Columbia University's Graduate School of Business. She is also active in not-for-profit activities related to STEM (science, technology, engineering and math) education.

Contact Information:

Ellen M. Reilly
[redacted]

From: sam.salamay [redacted]
Sent: Tuesday, November 13, 2012 8:07 AM
To: pcast@ostp.gov
Cc: [redacted]
Subject: Aneutronic Fusion Breakthrough

Mr. Holdren,

Please review www.lpphysics.com as we are on the verge of feasibility to produce low cost distributed aneutronic fusion devices. We need your support.
Sincerely,
Sam Salamay
Senior Consultant
Lawrenceville Plasma Physics
[redacted]

Public Comment for November 30, 2012 PCAST Meeting

To the Members of the President's Council of Advisors on Science and Technology:

As AAAS Science & Technology Policy Fellows, we are scientists, engineers, and health professionals that contribute to the federal policymaking process via our work within executive branch agencies and the Congress. In our various roles across the federal government, cross-cutting issues such as education resonate strongly with many of us.

The emergence of MOOCs is an opportunity to develop research and policy priorities surrounding disruptive technologies in education. While the nature of disruption is to cause uncertainty in the midst of a stable environment, disruption can also promote change, pushing us to innovate. To leverage the positive impact of disruption on the US STEM education system, we urge your consideration of three recommendations:

1. First, the formation of a commission composed of education researchers, MOOC developers, and policymakers, to evaluate the data on learning generated by MOOCs. Specifically, the development of best practices in MOOC pedagogy, as well as an open access model for dissemination of these educational outcomes, should be considered.
2. Second, consider the use of the MOOC platform to broaden participation in STEM fields by specifically reaching out to underrepresented populations in STEM (including, but not limited to, underrepresented minorities (URMs), first generation college students, individuals of low socioeconomic status (SES), individuals from rural communities, individuals with disabilities, and veterans), as well as to increase the STEM competency of teachers in lower-performing schools through teacher retraining. It is important to consider the ramification of the current physical infrastructure of the platform (for example, the requirement for stable long-term internet connectivity) on access for these communities.
3. Finally, the challenges facing STEM curricula in the context of MOOCs, in particular, that of providing the experiential training necessary in the laboratory sciences, should be examined. Laboratory experience is a proven contributing factor to recruiting and retaining students in STEM fields, and for obtaining the necessary job skills for many professionals in STEM.

The MadTECHEd (MOOCs and Disruptive Technologies in Education) subgroup of AAAS Science & Technology Policy Fellows looks forward to engaging with you in the future on this topic. Thank you for the opportunity to comment publicly on this matter.

Sincerely,

Dorothy Jones-Davis, Ph.D.

Warren (Trey) Lathe, Ph.D.

Emily Grumbling, Ph.D.

David Proctor, Ph.D.

Jason Feser, Ph.D.

Heather Dean, Ph.D.

This letter represents the opinion of a small group of AAAS Science & Technology Policy Fellows and not the opinion of AAAS, AAAS Fellows at large, or our placement agency, the National Science Foundation.