

## **Meeting Minutes**

**Jan. 15, 2020**

### **GWAC Members**

David Forfia, GWAC Chair

Ron Ambrosio, Chief Scientist, Utopus Insights, Inc.

Tanya Barham, Principal, Community Energy Labs

Ron Bernstein, President, RBCG, LLC

Ron Cunningham, AEP

Farrokh Rahimi, Senior Vice President, Open Access Technology International, Inc.

Gerald R. Gray, Sr. Program Manager, Electric Power Research Institute (EPRI)

Stephen Knapp, Vice President of Quality Assurance & Energy Markets, Power Analytics Corporation

Stuart McCafferty, Managing Director, IoT Architect, Black & Veatch

Leonard Tillman, Partner, Balch & Bingham, LLP

James Mater, Co-Founder and Director, QualityLogic, Inc.

Aaron Synder, EnerNex

### **GWAC Members not present**

Joe Hagerman, ORNL

Doug Houseman, Grid Modernization Lead, Burns & McDonnell

Lorenzo Kristov, Principal, Electric System Policy, Structure, Market Design

### **GWAC Associates & Emeritus**

Kay Aikin, CEO, Introspective Systems

Mark Knight, Burns & McDonnell

Jeff Morris, Principal, Energy Horizon Corp.

Ken Wacks, Home, Building & Utility Systems

### **GWAC Guests**

Larisa Dobriansky, Presenter, General Microgrids

Chris Irwin, US DOE

Dave LeVee, PwrCast

Robert Burke, R. Burke Consulting

David Katz, Sustainable Resources

Elizabeth Sisley

David Wollman, NIST

### **PNNL Support**

Ron Melton, Administrator

Susan McGuire, GWAC Coordinator

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### Administrative

David Forfia called the meeting to order at 10:00am PST.

Ron Melton read the proprietary slide and announced that Larisa Dobriansky with General Microgrids would be presenting first thing since she has a plane to catch.

Larisa Dobriansky, General Microgrids presented a talk to address “narrowing the gap” between the technical and regulatory domains. She proposed two GWAC contributions. The first would be a strategy paper and the second would be a white paper which would be an extension of the talk that she gave at TESC19 in Minnesota.

Larisa noted an unnecessary gap in trying to accommodate state mandates toward modernization which is taking a siloed technical approach. She noted that this takes away from overall grid modernization. She sees a lack of understanding of structural and functional changes and a lack of understanding of what is needed to cost effectively reach grid modernization goals.

As continuing change evolves regulators are waiting for instruction, but reform is needed now.

Restructuring is underway, however, there is a realization that within a growing context of digital, DER, and renewables are already affecting the “rules of the road.” There is not alignment between architecture, design and rules of the road. Alignment needs to be across each phase. Siloed approaches and lack of alignment are big problems that she has observed. Methods being used are very traditional.

Regulators need to respond to market change and consumer needs.

She outlined steps that she has been taking to address this. She’s been working with an NGO to propose changes to regulators.

The white paper that she is currently developing expands on the need for a holistic approach.

Ron Melton thanked Larisa on behalf of the GWAC for her interesting ideas and she said that this will be discussed more in Orlando as it relates well to the topics on the agenda. Ron will get back to her in the next few days. She will see if she can adjust her schedule to attend.

Stephen Knapp also thanked her for her talk and asked about the controversy of order 845 regarding PJM and market pricing rules. This is the minimum price offer rule which leads to better transparency.

Larisa replied that federal groups such as the FERC minimum pricing, and good development at federal level are not bad but the challenge is how to bring that to the states. From generation level to the customer level, we could tap in better to FERC. Additionally, state jurisdictions at both wholesale and retail must respond to it. One of the challenges is to cross pollinate between markets. She rephrased it saying the challenge is how to bring it down to the state level and be less siloed? There are ways – NARUC and NERI have been working to expand and engage FERC but it is sensitive. There needs to be

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integrated planning from generation level to customer level. Coordination is needed between transmissions and TD interface, and framework. By tapping into FERCs inroads – not only in minimum pricing but also with the foundation laid with respect to energy storage. They have had some excellent technical conferences and have brought in state representatives to address issues in a coordinated fashion. She said even at the Federal level the industry structural issue is not being addressed.

Ron Melton thought that an outline of the paper she is proposing would be helpful as a next step and there was agreement. Farrokh agreed particularly on the discussion at the end with Stephen that was particularly relevant to the GWAC architecture work. Coordination at federal and state level about FERC is very relevant.

Chris Villarreal wanted to clarify that MOPR is not universally liked. Many view MOPR very negatively. He said the potential for states to leave the PJM capacity market. Some FERC actions are not well taken by the states. If FERC continues to intrude on the states, there will be greater unhappiness.

One of the risks of MOPR access introduces is for states to leave the PJM capacity market. For states and FERC to become better aligned is very important. If FERC continues to intrude on state decision making capacities through the MOPR there will be greater unhappiness from the states.

Jeff Morris agreed with Chris and he noted that in the east with the energy imbalance markets at the wholesale level and actions by FERC pushing DER assets up to the wholesale markets directly and a lack of valuation tools at the distribution level are becoming a constructed barrier and long term hardening that will make it hard to transition these markets.

Ron encouraged Stephen Knapp, Farrokh Rahimi, Chris Villarreal, and Jeff Morris to stay involved in this activity with Larisa since they have all expressed interest in her presentation today.

**Action: Ron Melton to follow up with Larisa Dobriansky to see if she can adjust her schedule and attend the GWAC meeting in Orlando. Stephen Knapp, Farrokh Rahimi, Chris Villarreal and Jeff Morris to stay in touch with Larisa and find ways to address and incorporate her work with GWAC activities.**

### GWAC Administrative Business

David Forfia asked for a motion to approve the December 10, 2019 GWAC meeting minutes noting that edit that Ken Wacks had sent in this morning will be included. Ron Bernstein gave the motion and Stephen Knapp seconded the motion. David asked for a vote to approve the minutes and none were opposed. The minutes were unanimously approved.

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### Action Item Review

## Review Meeting Minutes & Actions

- Dec. 10, 2019 – meeting minutes approval
- Action items from previous meetings
  - **All:** please let Ron know if you will be unable to attend a call ahead of time.
  - ✓ Action: Ron Melton to schedule a meeting with Doug Houseman to further discuss IEEE and TESC. **complete**
  - Action: Include a history slide on the GWAC accomplishment matrix for completed actions – Ron Melton
  - ✓ Action: Susie/Ron to send a letter to Ken Wacks regarding submission of the TE Framework to the IEC publication as an international document. **Sent to Ken 01/14/20**

### GWAC meeting minutes – ACTIONS – Nov 2019

- Action: Ron Melton and Susie McGuire to add Alectra to the March 2020 GWAC meeting agenda.
- Action: Ron Melton will look at removing the TE Framework from the GWAC matrix and at adding the Decision Maker's Checklist 2020 revisions to the GWAC matrix before the next meeting. **(Susie edited the matrix for this – both the original and the edited version are in this slide set)**
- ✓ Action: Susie to add Ron Bernstein and Jeff Morris to the TESC20 Organizing committee list **(complete)**
- ✓ Action: Susie McGuire compile a list of TESC themes starting from 2013 forward and see what is next in the progression. **(complete and distributed)**
- ✓ Action: Susie/David schedule the organizing committee and get a meeting in before the end of the year. **(complete)**
- ✓ Action: David suggested getting a list of suggested themes out to the group before the January meeting of the organizing committee. (Ron, David, Susie) **Mark Paterson suggested "Grid Arch – beyond TE"**
- ✓ Action: Susie to schedule the first meeting of the Checklist Refresh group and add Chris Villarreal to the list. **(complete)**
- Action: David Forfia to ask Aaron Smallwood about becoming the GWAC SEPA liaison.
- ✓ ACTION: Susie McGuire to look for restaurants near the OCCC for Tuesday night for a no-host dinner. **(complete, have run by Ron B).**
- Action: Ron and David to discuss adding a Liaison report on Interoperability as noted by James Mater.

Ron Melton read through the November and December action items.

He noted that he has not done the GWAC activity matrix history slide yet.

He also noted that the first meeting of the Decision Makers Checklist Refresh took place on December 17.

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Ron commented that the Economic Resilience white paper is complete and under review at PNNL. There are some edits needed, the changes are in process.

Jeff Morris is willing to contact PGE regarding their support of TESC20. He hasn't contacted them yet, he was waiting for a green light, he didn't want to overlap with Tanya.

Tanya Barham said that Joe Barra retired very recently from PGE, and left PGE. She would appreciate any help from Jeff Morris. He will copy Ron Melton and Tanya on what he finds out.

Alectra will give a presentation on the March GWAC call.

David Forfia commented that Aaron Smallwood has new responsibilities at SEPA and may not be able to be our new liaison.

## Conferences and Events

(**Bold** indicates GWAC speakers)

- **AHR Expo, Orlando, FL, February 3 – 5, 2020**
- **NARUC Winter Policy Summit, Washington, DC, February 9 - 12, 2020**
- **IEEE ISGT 2020, Washington, DC, February 17 – 20, 2020**
- **CABA Smart Buildings Summit, Florida, May 3 – 5, 2020 (new)**
- **IEEE PES General Meeting 2020, Montreal, August 2 – 6, 2020**
- **Smart Energy Summit by Parks & Assoc., Austin, TX Feb. 17-19, 2020 (NEW)**
- **GWAC Face-to-Face Meeting**
- **Meeting invite went out Dec. 5 to the GWAC lists bern**
  - When – February 5 & 6, 2020
  - Where – Orlando, FL – in conjunction with AHR Expo
  - Workshop topic – Grid Future States Refresh and Deep Dive on High DER, DA & Storage Reference Architecture
  - GWAC will host an educational seminar at the AHR Expo on Tuesday, Feb. 4 from 4:30pm to 6:00pm



### GWAC F2F meeting - Orlando

The Tuesday night dinner for the Face to face is pending headcount. Attendees please RSVP to Susie.

Ron Ambrosio said that he would arrive in time to attend the dinner and hopefully the seminar. Also attending the dinner will be Ron Cunningham, James Mater, Leonard Tillman, Kay Aiken, David Katz, and Gerald Gray.

Ron Bernstein will take interested GWAC attendees on a tour of the AHR Expo. It is a huge show and easy to get lost; there are 60,000 attendees, with some grid related activities. He will take people

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through building automation which might be particularly interesting to those involved in EMS – energy management, IOT, BIOT, etc.

### WAC 2020

## Introducing the GWAC class of 2020-2021...



David Forfia



Ron Ambrosio



Tanya Barham



Ron Bernstein



Andy Bordine



Ron Cunningham



Gerald R. Gray



Stephen Knapp



Lorenzo Kristov



Stuart McCafferty



Farrokh Rahimi



Leonard Tillman



Aaron Snyder

### GWAC members and assigned terms of service:

David Forfia 2019 - 2020, Ron Ambrosio 2020 – 2021, Tanya Barham 2019 – 2020, Ron Bernstein 2019 – 2020, Andrew Bordine 2020 – 2021, Ron Cunningham 2020 – 2021, Gerald Gray 2019 – 2020, Stephen Knapp 2019 - 2020, Lorenzo Kristov 2019 – 2020, Stuart McCafferty 2020 – 2021, Farrokh Rahimi 2020 – 2021, Aaron Snyder 2020 – 2021, Leonard Tillman 2020 – 2021.

Ron Melton announced that the GWAC call for Membership closed on December 15. The selection committee met on December 17. The GWAC met and approved the slate earlier this morning.

Ron Melton introduced new GWAC team members; Ron Cunningham, Aaron Synder, Stuart McCafferty and Andrew Bordine. They will be officially introduced at the GWAC Face to Face in Orlando.

Ron Melton did an introduction of each new member.

### New members



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**Ron Cunningham** – IT Enterprise Architect at American Electric Power (AEP) - he has lot of history with the council. His background is in the electric utility industry and in IT. GWAC relevant work includes cyber security, telecom, standards development, and smart grid.

**Aaron Snyder** with EnerNex has a current project in Africa; they are working with USTDA to analyze their power systems and then help them fix problems with non-technical losses that affect power flow. He is the project manager for the team. He is training a team on power systems. The training is being given in French.

Aaron has experience with standards development at the national and international level with harmonization for metering, advanced metering infrastructure, and electric vehicles and a program manager for work with Transactive Energy Platforms.

**Stuart McCafferty** – Ron Melton noted that Stuart had started a software engineering company in the past and then moved into more GWAC related things after that. He is currently working with systems and platforms now at Black and Veatch. He has expertise related to GWAC interests in areas such as technical architecture, systems engineering, microgrids, and OpenFMB.

**Andrew Bordine** – Formerly with Consumers Energy and worked with Gerald Gray there. Andrew oversaw grid modernization efforts. He is now Vice President of Energy Markets and Innovation at Anterix. He has experience in topics related to GWAC including DER, distribution automation, grid modernization, and residential wind and solar, electric system design.

### Outgoing members

Ron Melton thanked James Mater, Doug Houseman, Joe Hagerman and Tom Sloan for their service to the council and encouraged them to remain involved as emeritus members.

**James Mater** said that being part of the GWAC has been a wonderful privilege; he has gained special friendships and participated in many interesting professional discussions. He plans to continue to participate as much as possible and said he will be in Orlando.

### GWAC Activity Matrix

Ron Melton noted some changes in the matrix. The TE Framework has been taken off since it is now published, and the Decision Makers Checklist Refresh effort will be added. A committee has been formed and has held the first meeting on Dec. 17, 2019. Team members are Leonard Tillman, David Wollman, David Forfia, Chris Villarreal and Ron Melton. Ron will add some detail to the edited matrix shown.

**Action Ron Melton: Add detail to the Decision Makers Checklist task on the activity matrix.**

Ron Bernstein commented that he would like to use this matrix slide for his talk in Orlando – he will coordinate with Ron Melton to have the latest one for that meeting. He also would like to have a history

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slide for the talk if possible. Ron Bernstein also noted that seminar participants at AHR will be able to download the slides in real time during the seminar.

### GWAC seminar at AHR Expo – Orlando

The panel for the GWAC educational seminar, based on the white paper on Smart Buildings as TE Hubs will be part of the AHR Expo on Feb. 4. The talk will be led by Ron Bernstein, and the panel will include David Forfia, Leonard Tillman and Ron Melton.

**Action: Susie McGuire to send out a reminder about the AHR GWAC white paper seminar. (complete)**

### TESC20 Planning

Ron Melton was in a meeting earlier this week for IEEE and he said the PSOPE and TCPIP technical committees are interested in helping with TESC20. Also, SBLC, the technical committee that Ron Melton and Doug Houseman are involved with is also a natural fit. Farrokh Rahimi said that the Analytical Methods for Power Systems (AMPS) SEPA group is also interested. Ron Melton will follow up on the strong interest from these several IEEE technical committees.

Ron Melton noted that the members of the TESC20 organizing committee are all from the GWAC so far. More members are needed to fill open committee spots. Ron expects to be able to fill the spots from IEEE technical committees but any GWAC participants wanting to join the committee are welcome.

Portland OR is the anticipated location for TESC2020 and Ron Melton is hoping that we can hold it again at the World Trade Center there, but nothing had been officially determined yet.

The theme that has been discussed is “TE – making it real” or SEA-(Grid) state changes (meaning a change in the weather).

James Mater said in terms of Portland General Electric – Andy Maklund is part of Grid FWD (formerly Smart Grid NW). James said that Andy would be a good contact and offered to help contact him. Jeff Morris is reaching out to his two contacts through the government affairs office regarding their support for the conference and use of the Portland world trade center. Jeff will use James as a lifeline if he has troubles getting PGE support for TESC20.

Ron Melton said he appreciates their efforts. He is anxious to be able to close the loop on the location and the facility so that the organizing committee can stay ahead of the game.

Ron noted that getting the conference application submitted to IEEE is another step still to be completed. It will start with the budget. Organizers are planning to use the last conference as the point of reference on these items. Roseanne Jones with IEEE is starting to schedule planning meetings. This coming Monday will be an off-cycle instance because of DistribuTech.



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David Forfia – who calls himself the TESC20 evil program manager – urged everyone to work quickly so that we can announce the meeting and speakers earlier than last year.

We want to go beyond TE Ron Melton agreed. Ron Bernstein also agreed that beyond TE into Grid Architecture and Grid Services is good – he feels that GWAC has “played out” TE.

Ron Ambrosio agreed with Farrokh that Grid Architecture is too narrow. Moving up the food chain toward how to create the right overall framework – includes architecture, regulation and bus models. Ron Melton said Grid Architecture covers all of that, but Ron Ambrosio said maybe not everyone agrees on that point of view.

Ron Ambrosio went on to say that messaging perspective we need to find the right terminology.

Ron Melton agreed that GWAC could work more on the labels, noting that within the DOE we mean specific things with the term “Grid Architecture,” but it’s quite broad.

Gerald Gray proposed “ Architecture – the thing you have been trying to ignore for 30 years”

Stephen Knapp said from the hypothesis to the white board – with grid architecture – one component that is a benefit of TE – and think of the TE Roadmap – with AI and ML is how are we better utilizing grid architecture and how TE is benefitting from that. He suggested, “Grid Architecture - how is it applied to TE?”

Ron Melton said there will be some ensuing interesting discussions – hopefully at the F2F in Orlando.

Ron Ambrosio said we have struck a chord (not a nerve) that he would like to be added to the Organizing Committee for TESC20.

**Action: Susie to ask Roseanne Jones, IEEE, to add Ron Ambrosio to the organizing committee meetings. (complete)**

Jeff Morris told the group that he will not be in Orlando. He noted that Larisa’s talk would be a huge track and many topics could be framed under her topic – particularly in the area of getting regulators and policy makers to get their minds on topics that we have been discussing today.

### GWAC Activities

The GWAC White paper on Smart buildings as a TE Hub or SBATH group discussed calendars and when to schedule the next meeting. (Jan. 16, 2020)

The Decision Maker’s Checklist refresh working group consists of David Wollman, Chris Villarreal, Ron Melton, Leonard Tilman, and David Forfia. Working party calls are being scheduled and Ron will ask Jamie Kolln to be the PNNL person to champion the effort. The objective is to update examples, terminology, industry direction. David Forfia said he has some edits posted on GridArch.org – he put changes in this morning. These are suggested changes. Chris Villarreal was not able to make the first call; he will be on the next call.

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**Action: Susie to schedule Ron M to meet with Jamie C on this. (complete)**

### GWAC Orlando F2F

Ron Melton reviewed the planned agenda and encouraged everyone to sign up for the AHR registration now so that badges can be mailed out in time.

Ron also noted that lunches would not be served at this F2F due to the high vendor costs at this event (Well above government allowable for catered lunches).

Ron Bernstein said there is plenty of food available for sale inside the convention center, but it is busy and fast paced. He advised everyone to move quickly to avoid delays over lunch.

Ron Bernstein also noted that there is Uber service in Orlando. Ken Wacks noted that the AHR provides shuttle bus service to all the AHR listed hotels from the Convention Center.

### Liaison Reports

David Wollman – NIST – they have been delayed in releasing the framework for public comment. He provided the link of publication 1900-604 – Economics of Interoperability in the Context of Smart Grid Architectures.

<https://doi.org/10.6028/NIST.SP.1900-604>

Ken ISO/IEC – The GWAC TE Framework document as an international publication will be on the ballot this Friday. Also, there is a new publication on AI for energy management in apartment complexes. This is a major addition to the body of work for this working group and it is the first of a new series of standards on AI. Ron Melton asked if there is public information available on this. Ken said that he could share documents with GWAC since GWAC is a liaison member of the international standard committee.

SEPA – Ron Melton, Mark Knight and Ken Wacks are on the new advisory committee. The next meeting is overlapping with the GWAC F2F in Orlando. Ron and Ken will be attending GWAC instead.

David Forfia noted that he is no longer a SEPA board member and not a member of the technical advisory board.

Ron Melton said that there have been a lot of changes at SEPA.

Gerald Gray said Ben Heely with SEPA (lead DER and demand response) just left EPRI for SEPA.

David Wollman noted that Avi Gopstein has been invited to join the tech council at SEPA.

ASHRAE - Ron Bernstein noted that next week there is a meeting of ASHRAE subgroups – IOT Cyber Security and Interoperability. He will give a talk along with his brother on technical and legal aspects of developing interoperability platforms. This group is working on Interoperability for IOT platforms for building controls which may be of interest to GWAC. He will keep us updated.

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Ron Bernstein also noted that he had been invited to be a keynote speaker and he offered to team with his brother who is a lawyer who specializes in cyber and privacy issues.

Ron Bernstein reminded everyone the AHR Expo and the AHRAE Winter conference are in parallel at Orlando, however, they are two separate conferences. A separate registration may be needed to attend an AHRAE talk.

Farrokh Rahimi – IEEE PES ISGT – There will be a TE session on Feb. 18; and two sessions on block chain on Feb. 19. More important – at the general meeting on Aug. 4 –they have agreed to include a full day workshop on block chain in energy and there are three segments; Transactive Energy (TE), Cyber Security and utility block chain applications. The technical program is being drafted now; they have another month to finalize it. Claudio Lima and Farrokh Rahimi may propose to participate in the one-day workshop. Also, there are a couple of SBLC panel sessions. It can be hard to get a workshop, so he wanted to call it out.

Rahul Bahadur has a panel session for the GWAC Resilience white paper on the next day and Farrokh is a speaker on that.

Also, at the IEEE PES general meeting in Montreal on Thursday morning (Aug. 6) Ron Melton and Jeff Taft will be teaching a Grid Architecture tutorial. It will be a 4-hour educational seminar.

David Forfia–EBC, Energy Block Chain Consortium – will go through use case scenarios. Also, the 503 status of the group is moving forward.

Chris Villarreal – NARUC –Brandon Presley from Mississippi is the next president. His theme for the next meeting will focus on the consumer who is not fully making use of the internet – the underserved and under invested without enough access to broadband. It is a one-year appointment. The NARUC annual meeting will be Feb. 9 -12 in DC. The agenda is not yet final. Also, they have finalized a draft set of questions that a regulator may want to ask utilities regarding Interoperability – pursuant to a NIST grant – part of the workshop at Austin in September that David Forfia was a part of. They are trying to give Interoperability info for regulators. It is not yet fully reviewed.

Open ADR - James Mater. James said it is gratifying to see the number of organizations globally adopting OpenADR for their demand response standard. They see a lot of EVSE vendors using this. OpenADR will pub a white paper on DER communications hopefully next month.

James Mater asked about the GWAC focus on EV operations. He sees it interesting how electric grid and automakers interact on EV issues. If the vehicles have bi-directional inverters it is a new technology and integrating it is unregulated.

Tanya Barham expressed interest in this as well.

James asked if we should do any more from a liaison standpoint in the EV world. His group is starting to work with SAE groups on their standards and communications side with grid operations.

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### Adjourn

David Forfia thanked James Mater, Doug Houseman, Tom Sloan and Joe Hagerman for their service to the GWAC and said that he hopes that they will continue as Emeritus.

David asked for a motion from now emeritus James Mater to adjourn which was given, and Farrokh Rahimi seconded the motion.

### Side bar

**Ron Bernstein provided a link to the AHRI IO in HVACR Summit that he had mentioned. Some good background info:**

[http://www.mmsend63.com/link.cfm?r=fhDrE-tMRU1eCFpMpyOd3A~~&pe=MpLQLolAY88qZn5\\_JY2oQRUzTpgAD2rdP6mTbWuj1f63esyrygBf8vA4xb3iDWP9SwK9yrOZ6yQimF5Z-xH2Jg~~&t=dODImfqYRD58dhzd1h5uTg~~](http://www.mmsend63.com/link.cfm?r=fhDrE-tMRU1eCFpMpyOd3A~~&pe=MpLQLolAY88qZn5_JY2oQRUzTpgAD2rdP6mTbWuj1f63esyrygBf8vA4xb3iDWP9SwK9yrOZ6yQimF5Z-xH2Jg~~&t=dODImfqYRD58dhzd1h5uTg~~)